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(54) Title: COMPOSITIONS AND METHODS FOR THE THERAPY AND DIAGNOSIS OF LUNG CANCER

(57) Abstract: Compositions and methods for the therapy and diagnosis of cancer, such as lung cancer, are disclosed. Compositions may comprise one or more lung tumor proteins, immunogenic portions thereof, or polynucleotides that encode such portions. Alternatively, a therapeutic composition may comprise an antigen presenting cell that expresses a lung tumor protein, or a T cell that is specific for cells expressing such a protein. Such compositions may be used, for example, for the prevention and treatment of diseases such as lung cancer. Diagnostic methods based on detecting a lung tumor protein, or mRNA encoding such a protein, in a sample are also provided.

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COMPOSITIONS AND METHODS FOR THE THERAPY AND DIAGNOSIS OF LUNG CANCER

TECHNICAL FIELD OF THE INVENTION

~~The present invention relates generally to therapy and diagnosis of~~
5 cancer, such as lung cancer. The invention is more specifically related to polypeptides comprising at least a portion of a lung tumor protein, and to polynucleotides encoding such polypeptides. Such polypeptides and polynucleotides may be used in compositions for prevention and treatment of lung cancer, and for the diagnosis and monitoring of such cancers.

10 BACKGROUND OF THE INVENTION

Cancer is a significant health problem throughout the world. Although advances have been made in detection and therapy of cancer, no vaccine or other universally successful method for prevention or treatment is currently available. Current therapies, which are generally based on a combination of chemotherapy or
15 surgery and radiation, continue to prove inadequate in many patients.

Lung cancer is the primary cause of cancer death among both men and women in the U.S., with an estimated 172,000 new cases being reported in 1994. The five-year survival rate among all lung cancer patients, regardless of the stage of disease at diagnosis, is only 13%. This contrasts with a five-year survival rate of 46% among
20 cases detected while the disease is still localized. However, only 16% of lung cancers are discovered before the disease has spread.

Early detection is difficult since clinical symptoms are often not seen until the disease has reached an advanced stage. Currently, diagnosis is aided by the use of chest x-rays, analysis of the type of cells contained in sputum and fiberoptic
25 examination of the bronchial passages. Treatment regimens are determined by the type and stage of the cancer, and include surgery, radiation therapy and/or chemotherapy.

In spite of considerable research into therapies for this and other cancers, lung cancer remains difficult to diagnose and treat effectively. Accordingly, there is a

need in the art for improved methods for detecting and treating such cancers. The present invention fulfills these needs and further provides other related advantages.

SUMMARY OF THE INVENTION

Briefly stated, the present invention provides compositions and methods
5 for the diagnosis and therapy of cancer, such as lung cancer. In one aspect, the present invention provides polypeptides comprising at least a portion of a lung tumor protein, or a variant thereof. Certain portions and other variants are immunogenic, such that the ability of the variant to react with antigen-specific antisera is not substantially diminished. Within certain embodiments, the polypeptide comprises a sequence that is
10 encoded by a polynucleotide sequence selected from the group consisting of: (a) sequences recited in SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236,
15 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826; (b) variants of a sequence recited in SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134,
20 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826; and (c) complements of a sequence of (a) or (b). In specific embodiments, the polypeptides
25 of the present invention comprise at least a portion of a tumor protein that includes an amino acid sequence selected from the group consisting of sequences recited in SEQ ID NO: 786, 787, 791, 793, 795, 797-799, 806, 809 and 827, and variants thereof.

The present invention further provides polynucleotides that encode a polypeptide as described above, or a portion thereof (such as a portion encoding at least

15 amino acid residues of a lung tumor protein), expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical compositions comprising a polypeptide or polynucleotide as described above and a

~~5 physiologically acceptable carrier~~

Within a related aspect of the present invention, vaccines, or immunogenic compositions, for prophylactic or therapeutic use are provided. Such vaccines comprise a polypeptide or polynucleotide as described above and an immunostimulant.

10 The present invention further provides pharmaceutical compositions that comprise: (a) an antibody or antigen-binding fragment thereof that specifically binds to a lung tumor protein; and (b) a physiologically acceptable carrier.

Within further aspects, the present invention provides pharmaceutical compositions comprising: (a) an antigen presenting cell that expresses a polypeptide as
15 described above and (b) a pharmaceutically acceptable carrier or excipient. Antigen presenting cells include dendritic cells, macrophages, monocytes, fibroblasts and B cells.

Within related aspects, vaccines, or immunogenic compositions, are provided that comprise: (a) an antigen presenting cell that expresses a polypeptide as
20 described above and (b) an immunostimulant.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

Within related aspects, pharmaceutical compositions comprising a fusion
25 protein, or a polynucleotide encoding a fusion protein, in combination with a physiologically acceptable carrier are provided.

Vaccines, or immunogenic compositions, are further provided, within other aspects, that comprise a fusion protein, or a polynucleotide encoding a fusion protein, in combination with an immunostimulant.

30 Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a

patient a pharmaceutical composition or immunogenic composition as recited above. The patient may be afflicted with lung cancer, in which case the methods provide treatment for the disease, or patient considered at risk for such a disease may be treated prophylactically.

5 The present invention further provides, within other aspects, methods for removing tumor cells from a biological sample, comprising contacting a biological sample with T cells that specifically react with a lung tumor protein, wherein the step of contacting is performed under conditions and for a time sufficient to permit the removal of cells expressing the protein from the sample.

10 Within related aspects, methods are provided for inhibiting the development of a cancer in a patient, comprising administering to a patient a biological sample treated as described above.

 Methods are further provided, within other aspects, for stimulating and/or expanding T cells specific for a lung tumor protein, comprising contacting T
15 cells with one or more of: (i) a polypeptide as described above; (ii) a polynucleotide encoding such a polypeptide; and/or (iii) an antigen presenting cell that expresses such a polypeptide; under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Isolated T cell populations comprising T cells prepared as described above are also provided.

20 Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a T cell population as described above.

 The present invention further provides methods for inhibiting the development of a cancer in a patient, comprising the steps of: (a) incubating CD4⁺
25 and/or CD8⁺ T cells isolated from a patient with one or more of: (i) a polypeptide comprising at least an immunogenic portion of a lung tumor protein; (ii) a polynucleotide encoding such a polypeptide; and (iii) an antigen-presenting cell that expressed such a polypeptide; and (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of a cancer in the
30 patient. Proliferated cells may, but need not, be cloned prior to administration to the patient.

Within further aspects, the present invention provides methods for determining the presence or absence of a cancer in a patient, comprising: (a) contacting a biological sample obtained from a patient with a binding agent that binds to a polypeptide as recited above; (b) detecting in the sample an amount of polypeptide that
5 ~~binds to the binding agent; and (c) comparing the amount of polypeptide with a~~
predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient. Within preferred embodiments, the binding agent is an antibody, more preferably a monoclonal antibody. The cancer may be lung cancer.

The present invention also provides, within other aspects, methods for
10 monitoring the progression of a cancer in a patient. Such methods comprise the steps of: (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to a polypeptide as recited above; (b) detecting in the sample an amount of polypeptide that binds to the binding agent; (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in
15 time; and (d) comparing the amount of polypeptide detected in step (c) with the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

The present invention further provides, within other aspects, methods for determining the presence or absence of a cancer in a patient, comprising the steps of: (a)
20 contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a lung tumor protein; (b) detecting in the sample a level of a polynucleotide, preferably mRNA, that hybridizes to the oligonucleotide; and (c) comparing the level of polynucleotide that hybridizes to the oligonucleotide with a predetermined cut-off value, and therefrom determining the
25 presence or absence of a cancer in the patient. Within certain embodiments, the amount of mRNA is detected via polymerase chain reaction using, for example, at least one oligonucleotide primer that hybridizes to a polynucleotide encoding a polypeptide as recited above, or a complement of such a polynucleotide. Within other embodiments, the amount of mRNA is detected using a hybridization technique, employing an
30 oligonucleotide probe that hybridizes to a polynucleotide that encodes a polypeptide as recited above, or a complement of such a polynucleotide.

In related aspects, methods are provided for monitoring the progression of a cancer in a patient, comprising the steps of: (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a lung tumor protein; (b) detecting in the sample an amount of a polynucleotide
5 that hybridizes to the oligonucleotide; (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and (d) comparing the amount of polynucleotide detected in step (c) with the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

Within further aspects, the present invention provides antibodies, such as
10 monoclonal antibodies, that bind to a polypeptide as described above, as well as diagnostic kits comprising such antibodies. Diagnostic kits comprising one or more oligonucleotide probes or primers as described above are also provided.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All
15 references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

SEQUENCE IDENTIFIERS

SEQ ID NO: 1 is the determined cDNA sequence for clone #19038, also referred to as L845P.

20 SEQ ID NO: 2 is the determined cDNA sequence for clone #19036.

SEQ ID NO: 3 is the determined cDNA sequence for clone #19034.

SEQ ID NO: 4 is the determined cDNA sequence for clone #19033.

SEQ ID NO: 5 is the determined cDNA sequence for clone #19032.

25 SEQ ID NO: 6 is the determined cDNA sequence for clone #19030, also referred to as L559S.

SEQ ID NO: 7 is the determined cDNA sequence for clone #19029.

SEQ ID NO: 8 is the determined cDNA sequence for clone #19025.

SEQ ID NO: 9 is the determined cDNA sequence for clone #19023.

SEQ ID NO: 10 is the determined cDNA sequence for clone #18929.

30 SEQ ID NO: 11 is the determined cDNA sequence for clone #19010.

SEQ ID NO: 12 is the determined cDNA sequence for clone #19009.

SEQ ID NO: 13 is the determined cDNA sequence for clones #19005, 19007, 19016 and 19017.

SEQ ID NO: 14 is the determined cDNA sequence for clone #19004.

5 ~~SEQ ID NO: 15 is the determined cDNA sequence for clones #19002~~
and 18965.

SEQ ID NO: 16 is the determined cDNA sequence for clone #18998.

SEQ ID NO: 17 is the determined cDNA sequence for clone #18997.

SEQ ID NO: 18 is the determined cDNA sequence for clone #18996.

10 SEQ ID NO: 19 is the determined cDNA sequence for clone #18995.

SEQ ID NO: 20 is the determined cDNA sequence for clone #18994,
also known as L846P.

SEQ ID NO: 21 is the determined cDNA sequence for clone #18992.

SEQ ID NO: 22 is the determined cDNA sequence for clone #18991.

15 SEQ ID NO: 23 is the determined cDNA sequence for clone #18990,
also referred to as clone #20111.

SEQ ID NO: 24 is the determined cDNA sequence for clone #18987.

SEQ ID NO: 25 is the determined cDNA sequence for clone #18985,
also referred as L839P.

20 SEQ ID NO: 26 is the determined cDNA sequence for clone #18984,
also referred to as L847P.

SEQ ID NO: 27 is the determined cDNA sequence for clone #18983.

SEQ ID NO: 28 is the determined cDNA sequence for clones #18976
and 18980.

25 SEQ ID NO: 29 is the determined cDNA sequence for clone #18975.

SEQ ID NO: 30 is the determined cDNA sequence for clone #18974.

SEQ ID NO: 31 is the determined cDNA sequence for clone #18973.

SEQ ID NO: 32 is the determined cDNA sequence for clone #18972.

30 SEQ ID NO: 33 is the determined cDNA sequence for clone #18971,
also referred to as L801P.

SEQ ID NO: 34 is the determined cDNA sequence for clone #18970.

SEQ ID NO: 35 is the determined cDNA sequence for clone #18966.

SEQ ID NO: 36 is the determined cDNA sequence for clones #18964, 18968 and 19039.

SEQ ID NO: 37 is the determined cDNA sequence for clone #18960.

5 SEQ ID NO: 38 is the determined cDNA sequence for clone #18959.

SEQ ID NO: 39 is the determined cDNA sequence for clones #18958 and 18982.

SEQ ID NO: 40 is the determined cDNA sequence for clones #18956 and 19015.

10 SEQ ID NO: 41 is the determined cDNA sequence for clone #18954, also referred to L848P.

SEQ ID NO: 42 is the determined cDNA sequence for clone #18951.

SEQ ID NO: 43 is the determined cDNA sequence for clone #18950.

15 SEQ ID NO: 44 is the determined cDNA sequence for clones #18949 and 19024, also referred to as L844P.

SEQ ID NO: 45 is the determined cDNA sequence for clone #18948.

SEQ ID NO: 46 is the determined cDNA sequence for clone #18947, also referred to as L840P.

20 SEQ ID NO: 47 is the determined cDNA sequence for clones #18946, 18953, 18969 and 19027.

SEQ ID NO: 48 is the determined cDNA sequence for clone #18942.

SEQ ID NO: 49 is the determined cDNA sequence for clone #18940, 18962, 18963, 19006, 19008, 19000, and 19031.

SEQ ID NO: 50 is the determined cDNA sequence for clone #18939.

25 SEQ ID NO: 51 is the determined cDNA sequence for clones #18938 and 18952.

SEQ ID NO: 52 is the determined cDNA sequence for clone #18938.

SEQ ID NO: 53 is the determined cDNA sequence for clone #18937.

30 SEQ ID NO: 54 is the determined cDNA sequence for clones #18934, 18935, 18993 and 19022, also referred to as L548S.

SEQ ID NO: 55 is the determined cDNA sequence for clone #18932.

SEQ ID NO: 56 is the determined cDNA sequence for clones #18931 and 18936.

SEQ ID NO: 57 is the determined cDNA sequence for clone #18930.

SEQ ID NO: 58 is the determined cDNA sequence for clone #19014.

5 also referred to as L573P.

SEQ ID NO: 59 is the determined cDNA sequence for clone #19127.

SEQ ID NO: 60 is the determined cDNA sequence for clones #19057 and 19064.

SEQ ID NO: 61 is the determined cDNA sequence for clone #19122.

10 SEQ ID NO: 62 is the determined cDNA sequence for clones #19120 and 18121.

SEQ ID NO: 63 is the determined cDNA sequence for clone #19118.

SEQ ID NO: 64 is the determined cDNA sequence for clone #19117.

SEQ ID NO: 65 is the determined cDNA sequence for clone #19116.

15 SEQ ID NO: 66 is the determined cDNA sequence for clone #19114.

SEQ ID NO: 67 is the determined cDNA sequence for clone #19112, also known as L561S.

SEQ ID NO: 68 is the determined cDNA sequence for clone #19110.

20 SEQ ID NO: 69 is the determined cDNA sequence for clone #19107, also referred to as L552S.

SEQ ID NO: 70 is the determined cDNA sequence for clone #19106, also referred to as L547S.

SEQ ID NO: 71 is the determined cDNA sequence for clones #19105 and 19111.

25 SEQ ID NO: 72 is the determined cDNA sequence for clone #19099.

SEQ ID NO: 73 is the determined cDNA sequence for clones #19095, 19104 and 19125, also referred to as L549S.

SEQ ID NO: 74 is the determined cDNA sequence for clone #19094.

30 SEQ ID NO: 75 is the determined cDNA sequence for clones #19089 and 19101.

SEQ ID NO: 76 is the determined cDNA sequence for clone #19088.

SEQ ID NO: 77 is the determined cDNA sequence for clones #19087, 19092, 19096, 19100 and 19119.

SEQ ID NO: 78 is the determined cDNA sequence for clone #19086.

5 SEQ ID NO: 79 is the determined cDNA sequence for clone #19085, also referred to as L550S.

SEQ ID NO: 80 is the determined cDNA sequence for clone #19084, also referred to as clone #19079.

SEQ ID NO: 81 is the determined cDNA sequence for clone #19082.

SEQ ID NO: 82 is the determined cDNA sequence for clone #19080.

10 SEQ ID NO: 83 is the determined cDNA sequence for clone #19077.

SEQ ID NO: 84 is the determined cDNA sequence for clone #19076, also referred to as L551S.

SEQ ID NO: 85 is the determined cDNA sequence for clone #19074, also referred to as clone #20102.

15 SEQ ID NO: 86 is the determined cDNA sequence for clone #19073, also referred to as L560S.

SEQ ID NO: 87 is the determined cDNA sequence for clones #19072 and 19115.

SEQ ID NO: 88 is the determined cDNA sequence for clone #19071.

20 SEQ ID NO: 89 is the determined cDNA sequence for clone #19070.

SEQ ID NO: 90 is the determined cDNA sequence for clone #19069.

SEQ ID NO: 91 is the determined cDNA sequence for clone #19068, also referred to L563S.

SEQ ID NO: 92 is the determined cDNA sequence for clone #19066.

25 SEQ ID NO: 93 is the determined cDNA sequence for clone #19065.

SEQ ID NO: 94 is the determined cDNA sequence for clone #19063.

SEQ ID NO: 95 is the determined cDNA sequence for clones #19061, 19081, 19108 and 19109.

30 SEQ ID NO: 96 is the determined cDNA sequence for clones #19060, 19067 and 19083, also referred to as L548S.

SEQ ID NO: 97 is the determined cDNA sequence for clones #19059
and 19062.

SEQ ID NO: 98 is the determined cDNA sequence for clone #19058.

SEQ ID NO: 99 is the determined cDNA sequence for clone #19124.

5 ~~SEQ ID NO: 100 is the determined cDNA sequence for clone #18929.~~

SEQ ID NO: 101 is the determined cDNA sequence for clone #18422.

SEQ ID NO: 102 is the determined cDNA sequence for clone #18425.

SEQ ID NO: 103 is the determined cDNA sequence for clone #18431.

SEQ ID NO: 104 is the determined cDNA sequence for clone #18433.

10 SEQ ID NO: 105 is the determined cDNA sequence for clone #18444.

SEQ ID NO: 106 is the determined cDNA sequence for clone #18449.

SEQ ID NO: 107 is the determined cDNA sequence for clone #18451.

SEQ ID NO: 108 is the determined cDNA sequence for clone #18452.

SEQ ID NO: 109 is the determined cDNA sequence for clone #18455.

15 SEQ ID NO: 110 is the determined cDNA sequence for clone #18457.

SEQ ID NO: 111 is the determined cDNA sequence for clone #18466.

SEQ ID NO: 112 is the determined cDNA sequence for clone #18468.

SEQ ID NO: 113 is the determined cDNA sequence for clone #18471.

SEQ ID NO: 114 is the determined cDNA sequence for clone #18475.

20 SEQ ID NO: 115 is the determined cDNA sequence for clone #18476.

SEQ ID NO: 116 is the determined cDNA sequence for clone #18477.

SEQ ID NO: 117 is the determined cDNA sequence for clone #20631.

SEQ ID NO: 118 is the determined cDNA sequence for clone #20634.

SEQ ID NO: 119 is the determined cDNA sequence for clone #20635.

25 SEQ ID NO: 120 is the determined cDNA sequence for clone #20637.

SEQ ID NO: 121 is the determined cDNA sequence for clone #20638.

SEQ ID NO: 122 is the determined cDNA sequence for clone #20643.

SEQ ID NO: 123 is the determined cDNA sequence for clone #20652.

SEQ ID NO: 124 is the determined cDNA sequence for clone #20653.

30 SEQ ID NO: 125 is the determined cDNA sequence for clone #20657.

SEQ ID NO: 126 is the determined cDNA sequence for clone #20658.

SEQ ID NO: 127 is the determined cDNA sequence for clone #20660.
SEQ ID NO: 128 is the determined cDNA sequence for clone #20661.
SEQ ID NO: 129 is the determined cDNA sequence for clone #20663.
SEQ ID NO: 130 is the determined cDNA sequence for clone #20665.
5 SEQ ID NO: 131 is the determined cDNA sequence for clone #20670.
SEQ ID NO: 132 is the determined cDNA sequence for clone #20671.
SEQ ID NO: 133 is the determined cDNA sequence for clone #20672.
SEQ ID NO: 134 is the determined cDNA sequence for clone #20675.
SEQ ID NO: 135 is the determined cDNA sequence for clone #20679.
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SEQ ID NO: 137 is the determined cDNA sequence for clone #20682.
SEQ ID NO: 138 is the determined cDNA sequence for clone #20684.
SEQ ID NO: 139 is the determined cDNA sequence for clone #20685.
SEQ ID NO: 140 is the determined cDNA sequence for clone #20689.
15 SEQ ID NO: 141 is the determined cDNA sequence for clone #20699.
SEQ ID NO: 142 is the determined cDNA sequence for clone #20701.
SEQ ID NO: 143 is the determined cDNA sequence for clone #20702.
SEQ ID NO: 144 is the determined cDNA sequence for clone #20708.
SEQ ID NO: 145 is the determined cDNA sequence for clone #20715.
20 SEQ ID NO: 146 is the determined cDNA sequence for clone #20716.
SEQ ID NO: 147 is the determined cDNA sequence for clone #20719.
SEQ ID NO: 148 is the determined cDNA sequence for clone #19129.
SEQ ID NO: 149 is the determined cDNA sequence for clone #19131.1.
SEQ ID NO: 150 is the determined cDNA sequence for clone #19132.2.
25 SEQ ID NO: 151 is the determined cDNA sequence for clone #19133.
SEQ ID NO: 152 is the determined cDNA sequence for clone #19134.2.
SEQ ID NO: 153 is the determined cDNA sequence for clone #19135.2.
SEQ ID NO: 154 is the determined cDNA sequence for clone #19137.
SEQ ID NO: 155 is a first determined cDNA sequence for clone
30 #19138.1.

SEQ ID NO: 156 is a second determined cDNA sequence for clone
#19138.2.

SEQ ID NO: 157 is the determined cDNA sequence for clone #19139.

SEQ ID NO: 158 is a first determined cDNA sequence for clone

5 ~~#19140.1.~~

SEQ ID NO: 159 is a second determined cDNA sequence for clone

#19140.2.

SEQ ID NO: 160 is the determined cDNA sequence for clone #19141.

SEQ ID NO: 161 is the determined cDNA sequence for clone #19143.

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SEQ ID NO: 162 is the determined cDNA sequence for clone #19144.

SEQ ID NO: 163 is a first determined cDNA sequence for clone

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SEQ ID NO: 164 is a second determined cDNA sequence for clone

#19145.2.

15

SEQ ID NO: 165 is the determined cDNA sequence for clone #19146.

SEQ ID NO: 166 is the determined cDNA sequence for clone #19149.1.

SEQ ID NO: 167 is the determined cDNA sequence for clone #19152.

SEQ ID NO: 168 is a first determined cDNA sequence for clone

#19153.1.

20

SEQ ID NO: 169 is a second determined cDNA sequence for clone

#19153.2.

SEQ ID NO: 170 is the determined cDNA sequence for clone #19155.

SEQ ID NO: 171 is the determined cDNA sequence for clone #19157.

SEQ ID NO: 172 is the determined cDNA sequence for clone #19159.

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SEQ ID NO: 173 is the determined cDNA sequence for clone #19160.

SEQ ID NO: 174 is a first determined cDNA sequence for clone

#19161.1.

SEQ ID NO: 175 is a second determined cDNA sequence for clone

#19161.2.

30

SEQ ID NO: 176 is the determined cDNA sequence for clone #19162.1.

SEQ ID NO: 177 is the determined cDNA sequence for clone #19166.

- SEQ ID NO: 178 is the determined cDNA sequence for clone #19169.
SEQ ID NO: 179 is the determined cDNA sequence for clone #19171.
SEQ ID NO: 180 is a first determined cDNA sequence for clone
#19173.1.
5 SEQ ID NO: 181 is a second determined cDNA sequence for clone
#19173.2.
SEQ ID NO: 182 is the determined cDNA sequence for clone #19174.1.
SEQ ID NO: 183 is the determined cDNA sequence for clone #19175.
SEQ ID NO: 184 is the determined cDNA sequence for clone #19177.
10 SEQ ID NO: 185 is the determined cDNA sequence for clone #19178.
SEQ ID NO: 186 is the determined cDNA sequence for clone #19179.1.
SEQ ID NO: 187 is the determined cDNA sequence for clone #19179.2.
SEQ ID NO: 188 is the determined cDNA sequence for clone #19180.
SEQ ID NO: 189 is a first determined cDNA sequence for clone
15 #19182.1.
SEQ ID NO: 190 is a second determined cDNA sequence for clone
#19182.2.
SEQ ID NO: 191 is the determined cDNA sequence for clone #19183.1.
SEQ ID NO: 192 is the determined cDNA sequence for clone #19185.1.
20 SEQ ID NO: 193 is the determined cDNA sequence for clone #19187.
SEQ ID NO: 194 is the determined cDNA sequence for clone #19188.
SEQ ID NO: 195 is the determined cDNA sequence for clone #19190.
SEQ ID NO: 196 is the determined cDNA sequence for clone #19191.
SEQ ID NO: 197 is the determined cDNA sequence for clone #19192.
25 SEQ ID NO: 198 is the determined cDNA sequence for clone #19193.
SEQ ID NO: 199 is a first determined cDNA sequence for clone
#19194.1.
SEQ ID NO: 200 is a second determined cDNA sequence for clone
#19194.2.
30 SEQ ID NO: 201 is the determined cDNA sequence for clone #19197.

- SEQ ID NO: 202 is a first determined cDNA sequence for clone
#19200.1.
- SEQ ID NO: 203 is a second determined cDNA sequence for clone
#19200.2.
- ~~5 SEQ ID NO: 204 is the determined cDNA sequence for clone #19202.~~
- SEQ ID NO: 205 is a first determined cDNA sequence for clone
#19204.1.
- SEQ ID NO: 206 is a second determined cDNA sequence for clone
#19204.2.
- 10 SEQ ID NO: 207 is the determined cDNA sequence for clone #19205.
SEQ ID NO: 208 is a first determined cDNA sequence for clone
#19206.1.
- SEQ ID NO: 209 is a second determined cDNA sequence for clone
#19206.2.
- 15 SEQ ID NO: 210 is the determined cDNA sequence for clone #19207.
SEQ ID NO: 211 is the determined cDNA sequence for clone #19208.
SEQ ID NO: 212 is a first determined cDNA sequence for clone
#19211.1.
- SEQ ID NO: 213 is a second determined cDNA sequence for clone
20 #19211.2.
- SEQ ID NO: 214 is a first determined cDNA sequence for clone
#19214.1.
- SEQ ID NO: 215 is a second determined cDNA sequence for clone
#19214.2.
- 25 SEQ ID NO: 216 is the determined cDNA sequence for clone #19215.
SEQ ID NO: 217 is a first determined cDNA sequence for clone #19217.
2.
- SEQ ID NO: 218 is a second determined cDNA sequence for clone
#19217.2.
- 30 SEQ ID NO: 219 is a first determined cDNA sequence for clone
#19218.1.

- SEQ ID NO: 220 is a second determined cDNA sequence for clone #19218.2.
- SEQ ID NO: 221 is a first determined cDNA sequence for clone #19220.1.
- 5 SEQ ID NO: 222 is a second determined cDNA sequence for clone #19220.2.
- SEQ ID NO: 223 is the determined cDNA sequence for clone #22015.
- SEQ ID NO: 224 is the determined cDNA sequence for clone #22017.
- SEQ ID NO: 225 is the determined cDNA sequence for clone #22019.
- 10 SEQ ID NO: 226 is the determined cDNA sequence for clone #22020.
- SEQ ID NO: 227 is the determined cDNA sequence for clone #22023.
- SEQ ID NO: 228 is the determined cDNA sequence for clone #22026.
- SEQ ID NO: 229 is the determined cDNA sequence for clone #22027.
- SEQ ID NO: 230 is the determined cDNA sequence for clone #22028.
- 15 SEQ ID NO: 231 is the determined cDNA sequence for clone #22032.
- SEQ ID NO: 232 is the determined cDNA sequence for clone #22037.
- SEQ ID NO: 233 is the determined cDNA sequence for clone #22045.
- SEQ ID NO: 234 is the determined cDNA sequence for clone #22048.
- SEQ ID NO: 235 is the determined cDNA sequence for clone #22050.
- 20 SEQ ID NO: 236 is the determined cDNA sequence for clone #22052.
- SEQ ID NO: 237 is the determined cDNA sequence for clone #22053.
- SEQ ID NO: 238 is the determined cDNA sequence for clone #22057.
- SEQ ID NO: 239 is the determined cDNA sequence for clone #22066.
- SEQ ID NO: 240 is the determined cDNA sequence for clone #22077.
- 25 SEQ ID NO: 241 is the determined cDNA sequence for clone #22085.
- SEQ ID NO: 242 is the determined cDNA sequence for clone #22105.
- SEQ ID NO: 243 is the determined cDNA sequence for clone #22108.
- SEQ ID NO: 244 is the determined cDNA sequence for clone #22109.
- SEQ ID NO: 245 is the determined cDNA sequence for clone #24842.
- 30 SEQ ID NO: 246 is the determined cDNA sequence for clone #24843.
- SEQ ID NO: 247 is the determined cDNA sequence for clone #24845.

SEQ ID NO: 248 is the determined cDNA sequence for clone #24851.
SEQ ID NO: 249 is the determined cDNA sequence for clone #24852.
SEQ ID NO: 250 is the determined cDNA sequence for clone #24853.
SEQ ID NO: 251 is the determined cDNA sequence for clone #24854.
5 ~~SEQ ID NO: 252 is the determined cDNA sequence for clone #24855.~~
SEQ ID NO: 253 is the determined cDNA sequence for clone #24860.
SEQ ID NO: 254 is the determined cDNA sequence for clone #24864.
SEQ ID NO: 255 is the determined cDNA sequence for clone #24866.
SEQ ID NO: 256 is the determined cDNA sequence for clone #24867.
10 SEQ ID NO: 257 is the determined cDNA sequence for clone #24868.
SEQ ID NO: 258 is the determined cDNA sequence for clone #24869.
SEQ ID NO: 259 is the determined cDNA sequence for clone #24870.
SEQ ID NO: 260 is the determined cDNA sequence for clone #24872.
SEQ ID NO: 261 is the determined cDNA sequence for clone #24873.
15 SEQ ID NO: 262 is the determined cDNA sequence for clone #24875.
SEQ ID NO: 263 is the determined cDNA sequence for clone #24882.
SEQ ID NO: 264 is the determined cDNA sequence for clone #24885.
SEQ ID NO: 265 is the determined cDNA sequence for clone #24886.
SEQ ID NO: 266 is the determined cDNA sequence for clone #24887.
20 SEQ ID NO: 267 is the determined cDNA sequence for clone #24888.
SEQ ID NO: 268 is the determined cDNA sequence for clone #24890.
SEQ ID NO: 269 is the determined cDNA sequence for clone #24896.
SEQ ID NO: 270 is the determined cDNA sequence for clone #24897.
SEQ ID NO: 271 is the determined cDNA sequence for clone #24899.
25 SEQ ID NO: 272 is the determined cDNA sequence for clone #24901.
SEQ ID NO: 273 is the determined cDNA sequence for clone #24902.
SEQ ID NO: 274 is the determined cDNA sequence for clone #24906.
SEQ ID NO: 275 is the determined cDNA sequence for clone #24912.
SEQ ID NO: 276 is the determined cDNA sequence for clone #24913.
30 SEQ ID NO: 277 is the determined cDNA sequence for clone #24920.
SEQ ID NO: 278 is the determined cDNA sequence for clone #24927.

SEQ ID NO: 279 is the determined cDNA sequence for clone #24930.
SEQ ID NO: 280 is the determined cDNA sequence for clone #26938.
SEQ ID NO: 281 is the determined cDNA sequence for clone #26939.
SEQ ID NO: 282 is the determined cDNA sequence for clone #26943.
5 SEQ ID NO: 283 is the determined cDNA sequence for clone #26948.
SEQ ID NO: 284 is the determined cDNA sequence for clone #26951.
SEQ ID NO: 285 is the determined cDNA sequence for clone #26955.
SEQ ID NO: 286 is the determined cDNA sequence for clone #26956.
SEQ ID NO: 287 is the determined cDNA sequence for clone #26959.
10 SEQ ID NO: 288 is the determined cDNA sequence for clone #26961.
SEQ ID NO: 289 is the determined cDNA sequence for clone #26962.
SEQ ID NO: 290 is the determined cDNA sequence for clone #26964.
SEQ ID NO: 291 is the determined cDNA sequence for clone #26966.
SEQ ID NO: 292 is the determined cDNA sequence for clone #26968.
15 SEQ ID NO: 293 is the determined cDNA sequence for clone #26972.
SEQ ID NO: 294 is the determined cDNA sequence for clone #26973.
SEQ ID NO: 295 is the determined cDNA sequence for clone #26974.
SEQ ID NO: 296 is the determined cDNA sequence for clone #26976.
SEQ ID NO: 297 is the determined cDNA sequence for clone #26977.
20 SEQ ID NO: 298 is the determined cDNA sequence for clone #26979.
SEQ ID NO: 299 is the determined cDNA sequence for clone #26980.
SEQ ID NO: 300 is the determined cDNA sequence for clone #26981.
SEQ ID NO: 301 is the determined cDNA sequence for clone #26984.
SEQ ID NO: 302 is the determined cDNA sequence for clone #26985.
25 SEQ ID NO: 303 is the determined cDNA sequence for clone #26986.
SEQ ID NO: 304 is the determined cDNA sequence for clone #26993.
SEQ ID NO: 305 is the determined cDNA sequence for clone #26994.
SEQ ID NO: 306 is the determined cDNA sequence for clone #26995.
SEQ ID NO: 307 is the determined cDNA sequence for clone #27003.
30 SEQ ID NO: 308 is the determined cDNA sequence for clone #27005.
SEQ ID NO: 309 is the determined cDNA sequence for clone #27010.

SEQ ID NO: 310 is the determined cDNA sequence for clone #27011.

SEQ ID NO: 311 is the determined cDNA sequence for clone #27013.

SEQ ID NO: 312 is the determined cDNA sequence for clone #27016

SEQ ID NO: 313 is the determined cDNA sequence for clone #27017.

5 ~~SEQ ID NO: 314 is the determined cDNA sequence for clone #27019.~~

SEQ ID NO: 315 is the determined cDNA sequence for clone #27028.

SEQ ID NO: 316 is the full-length cDNA sequence for clone #19060.

SEQ ID NO: 317 is the full-length cDNA sequence for clone #18964.

SEQ ID NO: 318 is the full-length cDNA sequence for clone #18929.

10 SEQ ID NO: 319 is the full-length cDNA sequence for clone #18991.

SEQ ID NO: 320 is the full-length cDNA sequence for clone #18996.

SEQ ID NO: 321 is the full-length cDNA sequence for clone #18966.

SEQ ID NO: 322 is the full-length cDNA sequence for clone #18951.

SEQ ID NO: 323 is the full-length cDNA sequence for clone #18973

15 (also known as L516S).

SEQ ID NO: 324 is the amino acid sequence for clone #19060.

SEQ ID NO: 325 is the amino acid sequence for clone #19063.

SEQ ID NO: 326 is the amino acid sequence for clone #19077.

SEQ ID NO: 327 is the amino acid sequence for clone #19110.

20 SEQ ID NO: 328 is the amino acid sequence for clone #19122.

SEQ ID NO: 329 is the amino acid sequence for clone #19118.

SEQ ID NO: 330 is the amino acid sequence for clone #19080.

SEQ ID NO: 331 is the amino acid sequence for clone #19127.

SEQ ID NO: 332 is the amino acid sequence for clone #19117.

25 SEQ ID NO: 333 is the amino acid sequence for clone #19095, also
referred to L549S.

SEQ ID NO: 334 is the amino acid sequence for clone #18964.

SEQ ID NO: 335 is the amino acid sequence for clone #18929.

SEQ ID NO: 336 is the amino acid sequence for clone #18991.

30 SEQ ID NO: 337 is the amino acid sequence for clone #18996.

SEQ ID NO: 338 is the amino acid sequence for clone #18966.

SEQ ID NO: 339 is the amino acid sequence for clone #18951.
SEQ ID NO: 340 is the amino acid sequence for clone #18973.
SEQ ID NO: 341 is the determined cDNA sequence for clone 26461.
SEQ ID NO: 342 is the determined cDNA sequence for clone 26462.
5 SEQ ID NO: 343 is the determined cDNA sequence for clone 26463.
SEQ ID NO: 344 is the determined cDNA sequence for clone 26464.
SEQ ID NO: 345 is the determined cDNA sequence for clone 26465.
SEQ ID NO: 346 is the determined cDNA sequence for clone 26466.
SEQ ID NO: 347 is the determined cDNA sequence for clone 26467.
10 SEQ ID NO: 348 is the determined cDNA sequence for clone 26468.
SEQ ID NO: 349 is the determined cDNA sequence for clone 26469.
SEQ ID NO: 350 is the determined cDNA sequence for clone 26470.
SEQ ID NO: 351 is the determined cDNA sequence for clone 26471.
SEQ ID NO: 352 is the determined cDNA sequence for clone 26472.
15 SEQ ID NO: 353 is the determined cDNA sequence for clone 26474.
SEQ ID NO: 354 is the determined cDNA sequence for clone 26475.
SEQ ID NO: 355 is the determined cDNA sequence for clone 26476.
SEQ ID NO: 356 is the determined cDNA sequence for clone 26477.
SEQ ID NO: 357 is the determined cDNA sequence for clone 26478.
20 SEQ ID NO: 358 is the determined cDNA sequence for clone 26479.
SEQ ID NO: 359 is the determined cDNA sequence for clone 26480.
SEQ ID NO: 360 is the determined cDNA sequence for clone 26481.
SEQ ID NO: 361 is the determined cDNA sequence for clone 26482.
SEQ ID NO: 362 is the determined cDNA sequence for clone 26483.
25 SEQ ID NO: 363 is the determined cDNA sequence for clone 26484.
SEQ ID NO: 364 is the determined cDNA sequence for clone 26485.
SEQ ID NO: 365 is the determined cDNA sequence for clone 26486.
SEQ ID NO: 366 is the determined cDNA sequence for clone 26487.
SEQ ID NO: 367 is the determined cDNA sequence for clone 26488.
30 SEQ ID NO: 368 is the determined cDNA sequence for clone 26489.
SEQ ID NO: 369 is the determined cDNA sequence for clone 26490.

SEQ ID NO: 370 is the determined cDNA sequence for clone 26491.
SEQ ID NO: 371 is the determined cDNA sequence for clone 26492.
SEQ ID NO: 372 is the determined cDNA sequence for clone 26493.
SEQ ID NO: 373 is the determined cDNA sequence for clone 26494.
5 ~~SEQ ID NO: 374 is the determined cDNA sequence for clone 26495.~~
SEQ ID NO: 375 is the determined cDNA sequence for clone 26496.
SEQ ID NO: 376 is the determined cDNA sequence for clone 26497.
SEQ ID NO: 377 is the determined cDNA sequence for clone 26498.
SEQ ID NO: 378 is the determined cDNA sequence for clone 26499.
10 SEQ ID NO: 379 is the determined cDNA sequence for clone 26500.
SEQ ID NO: 380 is the determined cDNA sequence for clone 26501.
SEQ ID NO: 381 is the determined cDNA sequence for clone 26502.
SEQ ID NO: 382 is the determined cDNA sequence for clone 26503.
SEQ ID NO: 383 is the determined cDNA sequence for clone 26504.
15 SEQ ID NO: 384 is the determined cDNA sequence for clone 26505.
SEQ ID NO: 385 is the determined cDNA sequence for clone 26506.
SEQ ID NO: 386 is the determined cDNA sequence for clone 26507.
SEQ ID NO: 387 is the determined cDNA sequence for clone 26508.
SEQ ID NO: 388 is the determined cDNA sequence for clone 26509.
20 SEQ ID NO: 389 is the determined cDNA sequence for clone 26511.
SEQ ID NO: 390 is the determined cDNA sequence for clone 26513.
SEQ ID NO: 391 is the determined cDNA sequence for clone 26514.
SEQ ID NO: 392 is the determined cDNA sequence for clone 26515.
SEQ ID NO: 393 is the determined cDNA sequence for clone 26516.
25 SEQ ID NO: 394 is the determined cDNA sequence for clone 26517.
SEQ ID NO: 395 is the determined cDNA sequence for clone 26518.
SEQ ID NO: 396 is the determined cDNA sequence for clone 26519.
SEQ ID NO: 397 is the determined cDNA sequence for clone 26520.
SEQ ID NO: 398 is the determined cDNA sequence for clone 26521.
30 SEQ ID NO: 399 is the determined cDNA sequence for clone 26522.
SEQ ID NO: 400 is the determined cDNA sequence for clone 26523.

SEQ ID NO: 401 is the determined cDNA sequence for clone 26524.
SEQ ID NO: 402 is the determined cDNA sequence for clone 26526.
SEQ ID NO: 403 is the determined cDNA sequence for clone 26527.
SEQ ID NO: 404 is the determined cDNA sequence for clone 26528.
5 SEQ ID NO: 405 is the determined cDNA sequence for clone 26529.
SEQ ID NO: 406 is the determined cDNA sequence for clone 26530.
SEQ ID NO: 407 is the determined cDNA sequence for clone 26532.
SEQ ID NO: 408 is the determined cDNA sequence for clone 26533.
SEQ ID NO: 409 is the determined cDNA sequence for clone 26534.
10 SEQ ID NO: 410 is the determined cDNA sequence for clone 26535.
SEQ ID NO: 411 is the determined cDNA sequence for clone 26536.
SEQ ID NO: 412 is the determined cDNA sequence for clone 26537.
SEQ ID NO: 413 is the determined cDNA sequence for clone 26538.
SEQ ID NO: 414 is the determined cDNA sequence for clone 26540.
15 SEQ ID NO: 415 is the determined cDNA sequence for clone 26541.
SEQ ID NO: 416 is the determined cDNA sequence for clone 26542.
SEQ ID NO: 417 is the determined cDNA sequence for clone 26543.
SEQ ID NO: 418 is the determined cDNA sequence for clone 26544.
SEQ ID NO: 419 is the determined cDNA sequence for clone 26546.
20 SEQ ID NO: 420 is the determined cDNA sequence for clone 26547.
SEQ ID NO: 421 is the determined cDNA sequence for clone 26548.
SEQ ID NO: 422 is the determined cDNA sequence for clone 26549.
SEQ ID NO: 423 is the determined cDNA sequence for clone 26550.
SEQ ID NO: 424 is the determined cDNA sequence for clone 26551.
25 SEQ ID NO: 425 is the determined cDNA sequence for clone 26552.
SEQ ID NO: 426 is the determined cDNA sequence for clone 26553.
SEQ ID NO: 427 is the determined cDNA sequence for clone 26554.
SEQ ID NO: 428 is the determined cDNA sequence for clone 26556.
SEQ ID NO: 429 is the determined cDNA sequence for clone 26557.
30 SEQ ID NO: 430 is the determined cDNA sequence for clone 27631.
SEQ ID NO: 431 is the determined cDNA sequence for clone 27632.

SEQ ID NO: 432 is the determined cDNA sequence for clone 27633.
SEQ ID NO: 433 is the determined cDNA sequence for clone 27635.
SEQ ID NO: 434 is the determined cDNA sequence for clone 27636.
SEQ ID NO: 435 is the determined cDNA sequence for clone 27637.
5 ~~SEQ ID NO: 436 is the determined cDNA sequence for clone 27638.~~
SEQ ID NO: 437 is the determined cDNA sequence for clone 27639.
SEQ ID NO: 438 is the determined cDNA sequence for clone 27640.
SEQ ID NO: 439 is the determined cDNA sequence for clone 27641.
SEQ ID NO: 440 is the determined cDNA sequence for clone 27642.
10 SEQ ID NO: 441 is the determined cDNA sequence for clone 27644.
SEQ ID NO: 442 is the determined cDNA sequence for clone 27646.
SEQ ID NO: 443 is the determined cDNA sequence for clone 27647.
SEQ ID NO: 444 is the determined cDNA sequence for clone 27649.
SEQ ID NO: 445 is the determined cDNA sequence for clone 27650.
15 SEQ ID NO: 446 is the determined cDNA sequence for clone 27651.
SEQ ID NO: 447 is the determined cDNA sequence for clone 27652.
SEQ ID NO: 448 is the determined cDNA sequence for clone 27654.
SEQ ID NO: 449 is the determined cDNA sequence for clone 27655.
SEQ ID NO: 450 is the determined cDNA sequence for clone 27657.
20 SEQ ID NO: 451 is the determined cDNA sequence for clone 27659.
SEQ ID NO: 452 is the determined cDNA sequence for clone 27665.
SEQ ID NO: 453 is the determined cDNA sequence for clone 27666.
SEQ ID NO: 454 is the determined cDNA sequence for clone 27668.
SEQ ID NO: 455 is the determined cDNA sequence for clone 27670.
25 SEQ ID NO: 456 is the determined cDNA sequence for clone 27671.
SEQ ID NO: 457 is the determined cDNA sequence for clone 27672.
SEQ ID NO: 458 is the determined cDNA sequence for clone 27674.
SEQ ID NO: 459 is the determined cDNA sequence for clone 27677.
SEQ ID NO: 460 is the determined cDNA sequence for clone 27681.
30 SEQ ID NO: 461 is the determined cDNA sequence for clone 27682.
SEQ ID NO: 462 is the determined cDNA sequence for clone 27683.

SEQ ID NO: 463 is the determined cDNA sequence for clone 27686.
SEQ ID NO: 464 is the determined cDNA sequence for clone 27688.
SEQ ID NO: 465 is the determined cDNA sequence for clone 27689.
SEQ ID NO: 466 is the determined cDNA sequence for clone 27690.
5 SEQ ID NO: 467 is the determined cDNA sequence for clone 27693.
SEQ ID NO: 468 is the determined cDNA sequence for clone 27699.
SEQ ID NO: 469 is the determined cDNA sequence for clone 27700.
SEQ ID NO: 470 is the determined cDNA sequence for clone 27702.
SEQ ID NO: 471 is the determined cDNA sequence for clone 27705.
10 SEQ ID NO: 472 is the determined cDNA sequence for clone 27706.
SEQ ID NO: 473 is the determined cDNA sequence for clone 27707.
SEQ ID NO: 474 is the determined cDNA sequence for clone 27708.
SEQ ID NO: 475 is the determined cDNA sequence for clone 27709.
SEQ ID NO: 476 is the determined cDNA sequence for clone 27710.
15 SEQ ID NO: 477 is the determined cDNA sequence for clone 27711.
SEQ ID NO: 478 is the determined cDNA sequence for clone 27712.
SEQ ID NO: 479 is the determined cDNA sequence for clone 27713.
SEQ ID NO: 480 is the determined cDNA sequence for clone 27714.
SEQ ID NO: 481 is the determined cDNA sequence for clone 27715.
20 SEQ ID NO: 482 is the determined cDNA sequence for clone 27716.
SEQ ID NO: 483 is the determined cDNA sequence for clone 27717.
SEQ ID NO: 484 is the determined cDNA sequence for clone 27718.
SEQ ID NO: 485 is the determined cDNA sequence for clone 27719.
SEQ ID NO: 486 is the determined cDNA sequence for clone 27720.
25 SEQ ID NO: 487 is the determined cDNA sequence for clone 27722.
SEQ ID NO: 488 is the determined cDNA sequence for clone 27723.
SEQ ID NO: 489 is the determined cDNA sequence for clone 27724.
SEQ ID NO: 490 is the determined cDNA sequence for clone 27726.
SEQ ID NO: 491 is the determined cDNA sequence for clone 25015.
30 SEQ ID NO: 492 is the determined cDNA sequence for clone 25016.
SEQ ID NO: 493 is the determined cDNA sequence for clone 25017.

SEQ ID NO: 494 is the determined cDNA sequence for clone 25018.
SEQ ID NO: 495 is the determined cDNA sequence for clone 25030.
SEQ ID NO: 496 is the determined cDNA sequence for clone 25033.
SEQ ID NO: 497 is the determined cDNA sequence for clone 25034.

5

~~SEQ ID NO: 498 is the determined cDNA sequence for clone 25035.~~

SEQ ID NO: 499 is the determined cDNA sequence for clone 25036.
SEQ ID NO: 500 is the determined cDNA sequence for clone 25037.
SEQ ID NO: 501 is the determined cDNA sequence for clone 25038.
SEQ ID NO: 502 is the determined cDNA sequence for clone 25039.
SEQ ID NO: 503 is the determined cDNA sequence for clone 25040.
SEQ ID NO: 504 is the determined cDNA sequence for clone 25042.
SEQ ID NO: 505 is the determined cDNA sequence for clone 25043.
SEQ ID NO: 506 is the determined cDNA sequence for clone 25044.
SEQ ID NO: 507 is the determined cDNA sequence for clone 25045.

10

15

SEQ ID NO: 508 is the determined cDNA sequence for clone 25047.
SEQ ID NO: 509 is the determined cDNA sequence for clone 25048.
SEQ ID NO: 510 is the determined cDNA sequence for clone 25049.
SEQ ID NO: 511 is the determined cDNA sequence for clone 25185.
SEQ ID NO: 512 is the determined cDNA sequence for clone 25186.

20

SEQ ID NO: 513 is the determined cDNA sequence for clone 25187.
SEQ ID NO: 514 is the determined cDNA sequence for clone 25188.
SEQ ID NO: 515 is the determined cDNA sequence for clone 25189.
SEQ ID NO: 516 is the determined cDNA sequence for clone 25190.
SEQ ID NO: 517 is the determined cDNA sequence for clone 25193.

25

SEQ ID NO: 518 is the determined cDNA sequence for clone 25194.
SEQ ID NO: 519 is the determined cDNA sequence for clone 25196.
SEQ ID NO: 520 is the determined cDNA sequence for clone 25198.
SEQ ID NO: 521 is the determined cDNA sequence for clone 25199.
SEQ ID NO: 522 is the determined cDNA sequence for clone 25200.

30

SEQ ID NO: 523 is the determined cDNA sequence for clone 25202.
SEQ ID NO: 524 is the determined cDNA sequence for clone 25364.

SEQ ID NO: 525 is the determined cDNA sequence for clone 25366.
SEQ ID NO: 526 is the determined cDNA sequence for clone 25367.
SEQ ID NO: 527 is the determined cDNA sequence for clone 25368.
SEQ ID NO: 528 is the determined cDNA sequence for clone 25369.
5 SEQ ID NO: 529 is the determined cDNA sequence for clone 25370.
SEQ ID NO: 530 is the determined cDNA sequence for clone 25371.
SEQ ID NO: 531 is the determined cDNA sequence for clone 25372.
SEQ ID NO: 532 is the determined cDNA sequence for clone 25373.
SEQ ID NO: 533 is the determined cDNA sequence for clone 25374.
10 SEQ ID NO: 534 is the determined cDNA sequence for clone 25376.
SEQ ID NO: 535 is the determined cDNA sequence for clone 25377.
SEQ ID NO: 536 is the determined cDNA sequence for clone 25378.
SEQ ID NO: 537 is the determined cDNA sequence for clone 25379.
SEQ ID NO: 538 is the determined cDNA sequence for clone 25380.
15 SEQ ID NO: 539 is the determined cDNA sequence for clone 25381.
SEQ ID NO: 540 is the determined cDNA sequence for clone 25382.
SEQ ID NO: 541 is the determined cDNA sequence for clone 25383.
SEQ ID NO: 542 is the determined cDNA sequence for clone 25385.
SEQ ID NO: 543 is the determined cDNA sequence for clone 25386.
20 SEQ ID NO: 544 is the determined cDNA sequence for clone 25387.
SEQ ID NO: 545 is the determined cDNA sequence for clone 26013.
SEQ ID NO: 546 is the determined cDNA sequence for clone 26014.
SEQ ID NO: 547 is the determined cDNA sequence for clone 26016.
SEQ ID NO: 548 is the determined cDNA sequence for clone 26017.
25 SEQ ID NO: 549 is the determined cDNA sequence for clone 26018.
SEQ ID NO: 550 is the determined cDNA sequence for clone 26019.
SEQ ID NO: 551 is the determined cDNA sequence for clone 26020.
SEQ ID NO: 552 is the determined cDNA sequence for clone 26021.
SEQ ID NO: 553 is the determined cDNA sequence for clone 26022.
30 SEQ ID NO: 554 is the determined cDNA sequence for clone 26027.
SEQ ID NO: 555 is the determined cDNA sequence for clone 26197.

SEQ ID NO: 556 is the determined cDNA sequence for clone 26199.
SEQ ID NO: 557 is the determined cDNA sequence for clone 26201.
SEQ ID NO: 558 is the determined cDNA sequence for clone 26202.
SEQ ID NO: 559 is the determined cDNA sequence for clone 26203.
5 ~~SEQ ID NO: 560 is the determined cDNA sequence for clone 26204.~~
SEQ ID NO: 561 is the determined cDNA sequence for clone 26205.
SEQ ID NO: 562 is the determined cDNA sequence for clone 26206.
SEQ ID NO: 563 is the determined cDNA sequence for clone 26208.
SEQ ID NO: 564 is the determined cDNA sequence for clone 26211.
10 SEQ ID NO: 565 is the determined cDNA sequence for clone 26212.
SEQ ID NO: 566 is the determined cDNA sequence for clone 26213.
SEQ ID NO: 567 is the determined cDNA sequence for clone 26214.
SEQ ID NO: 568 is the determined cDNA sequence for clone 26215.
SEQ ID NO: 569 is the determined cDNA sequence for clone 26216.
15 SEQ ID NO: 570 is the determined cDNA sequence for clone 26217.
SEQ ID NO: 571 is the determined cDNA sequence for clone 26218.
SEQ ID NO: 572 is the determined cDNA sequence for clone 26219.
SEQ ID NO: 573 is the determined cDNA sequence for clone 26220.
SEQ ID NO: 574 is the determined cDNA sequence for clone 26221.
20 SEQ ID NO: 575 is the determined cDNA sequence for clone 26224.
SEQ ID NO: 576 is the determined cDNA sequence for clone 26225.
SEQ ID NO: 577 is the determined cDNA sequence for clone 26226.
SEQ ID NO: 578 is the determined cDNA sequence for clone 26227.
SEQ ID NO: 579 is the determined cDNA sequence for clone 26228.
25 SEQ ID NO: 580 is the determined cDNA sequence for clone 26230.
SEQ ID NO: 581 is the determined cDNA sequence for clone 26231.
SEQ ID NO: 582 is the determined cDNA sequence for clone 26234.
SEQ ID NO: 583 is the determined cDNA sequence for clone 26236.
SEQ ID NO: 584 is the determined cDNA sequence for clone 26237.
30 SEQ ID NO: 585 is the determined cDNA sequence for clone 26239.
SEQ ID NO: 586 is the determined cDNA sequence for clone 26240.

SEQ ID NO: 587 is the determined cDNA sequence for clone 26241.
SEQ ID NO: 588 is the determined cDNA sequence for clone 26242.
SEQ ID NO: 589 is the determined cDNA sequence for clone 26246.
SEQ ID NO: 590 is the determined cDNA sequence for clone 26247.
5 SEQ ID NO: 591 is the determined cDNA sequence for clone 26248.
SEQ ID NO: 592 is the determined cDNA sequence for clone 26249.
SEQ ID NO: 593 is the determined cDNA sequence for clone 26250.
SEQ ID NO: 594 is the determined cDNA sequence for clone 26251.
SEQ ID NO: 595 is the determined cDNA sequence for clone 26252.
10 SEQ ID NO: 596 is the determined cDNA sequence for clone 26253.
SEQ ID NO: 597 is the determined cDNA sequence for clone 26254.
SEQ ID NO: 598 is the determined cDNA sequence for clone 26255.
SEQ ID NO: 599 is the determined cDNA sequence for clone 26256.
SEQ ID NO: 600 is the determined cDNA sequence for clone 26257.
15 SEQ ID NO: 601 is the determined cDNA sequence for clone 26259.
SEQ ID NO: 602 is the determined cDNA sequence for clone 26260.
SEQ ID NO: 603 is the determined cDNA sequence for clone 26261.
SEQ ID NO: 604 is the determined cDNA sequence for clone 26262.
SEQ ID NO: 605 is the determined cDNA sequence for clone 26263.
20 SEQ ID NO: 606 is the determined cDNA sequence for clone 26264.
SEQ ID NO: 607 is the determined cDNA sequence for clone 26265.
SEQ ID NO: 608 is the determined cDNA sequence for clone 26266.
SEQ ID NO: 609 is the determined cDNA sequence for clone 26268.
SEQ ID NO: 610 is the determined cDNA sequence for clone 26269.
25 SEQ ID NO: 611 is the determined cDNA sequence for clone 26271.
SEQ ID NO: 612 is the determined cDNA sequence for clone 26273.
SEQ ID NO: 613 is the determined cDNA sequence for clone 26810.
SEQ ID NO: 614 is the determined cDNA sequence for clone 26811.
SEQ ID NO: 615 is the determined cDNA sequence for clone 26812.1.
30 SEQ ID NO: 616 is the determined cDNA sequence for clone 26812.2.
SEQ ID NO: 617 is the determined cDNA sequence for clone 26813.

SEQ ID NO: 618 is the determined cDNA sequence for clone 26814.
SEQ ID NO: 619 is the determined cDNA sequence for clone 26815.
SEQ ID NO: 620 is the determined cDNA sequence for clone 26816.
SEQ ID NO: 621 is the determined cDNA sequence for clone 26818.
~~SEQ ID NO: 622 is the determined cDNA sequence for clone 26819.~~
SEQ ID NO: 623 is the determined cDNA sequence for clone 26820.
SEQ ID NO: 624 is the determined cDNA sequence for clone 26821.
SEQ ID NO: 625 is the determined cDNA sequence for clone 26822.
SEQ ID NO: 626 is the determined cDNA sequence for clone 26824.
10 SEQ ID NO: 627 is the determined cDNA sequence for clone 26825.
SEQ ID NO: 628 is the determined cDNA sequence for clone 26826.
SEQ ID NO: 629 is the determined cDNA sequence for clone 26827.
SEQ ID NO: 630 is the determined cDNA sequence for clone 26829.
SEQ ID NO: 631 is the determined cDNA sequence for clone 26830.
15 SEQ ID NO: 632 is the determined cDNA sequence for clone 26831.
SEQ ID NO: 633 is the determined cDNA sequence for clone 26832.
SEQ ID NO: 634 is the determined cDNA sequence for clone 26835.
SEQ ID NO: 635 is the determined cDNA sequence for clone 26836.
SEQ ID NO: 636 is the determined cDNA sequence for clone 26837.
20 SEQ ID NO: 637 is the determined cDNA sequence for clone 26839.
SEQ ID NO: 638 is the determined cDNA sequence for clone 26841.
SEQ ID NO: 639 is the determined cDNA sequence for clone 26843.
SEQ ID NO: 640 is the determined cDNA sequence for clone 26844.
SEQ ID NO: 641 is the determined cDNA sequence for clone 26845.
25 SEQ ID NO: 642 is the determined cDNA sequence for clone 26846.
SEQ ID NO: 643 is the determined cDNA sequence for clone 26847.
SEQ ID NO: 644 is the determined cDNA sequence for clone 26848.
SEQ ID NO: 645 is the determined cDNA sequence for clone 26849.
SEQ ID NO: 646 is the determined cDNA sequence for clone 26850.
30 SEQ ID NO: 647 is the determined cDNA sequence for clone 26851.
SEQ ID NO: 648 is the determined cDNA sequence for clone 26852.

SEQ ID NO: 649 is the determined cDNA sequence for clone 26853.
SEQ ID NO: 650 is the determined cDNA sequence for clone 26854.
SEQ ID NO: 651 is the determined cDNA sequence for clone 26856.
SEQ ID NO: 652 is the determined cDNA sequence for clone 26857.
5 SEQ ID NO: 653 is the determined cDNA sequence for clone 26858.
SEQ ID NO: 654 is the determined cDNA sequence for clone 26859.
SEQ ID NO: 655 is the determined cDNA sequence for clone 26860.
SEQ ID NO: 656 is the determined cDNA sequence for clone 26862.
SEQ ID NO: 657 is the determined cDNA sequence for clone 26863.
10 SEQ ID NO: 658 is the determined cDNA sequence for clone 26864.
SEQ ID NO: 659 is the determined cDNA sequence for clone 26865.
SEQ ID NO: 660 is the determined cDNA sequence for clone 26867.
SEQ ID NO: 661 is the determined cDNA sequence for clone 26868.
SEQ ID NO: 662 is the determined cDNA sequence for clone 26871.
15 SEQ ID NO: 663 is the determined cDNA sequence for clone 26873.
SEQ ID NO: 664 is the determined cDNA sequence for clone 26875.
SEQ ID NO: 665 is the determined cDNA sequence for clone 26876.
SEQ ID NO: 666 is the determined cDNA sequence for clone 26877.
SEQ ID NO: 667 is the determined cDNA sequence for clone 26878.
20 SEQ ID NO: 668 is the determined cDNA sequence for clone 26880.
SEQ ID NO: 669 is the determined cDNA sequence for clone 26882.
SEQ ID NO: 670 is the determined cDNA sequence for clone 26883.
SEQ ID NO: 671 is the determined cDNA sequence for clone 26884.
SEQ ID NO: 672 is the determined cDNA sequence for clone 26885.
25 SEQ ID NO: 673 is the determined cDNA sequence for clone 26886.
SEQ ID NO: 674 is the determined cDNA sequence for clone 26887.
SEQ ID NO: 675 is the determined cDNA sequence for clone 26888.
SEQ ID NO: 676 is the determined cDNA sequence for clone 26889.
SEQ ID NO: 677 is the determined cDNA sequence for clone 26890.
30 SEQ ID NO: 678 is the determined cDNA sequence for clone 26892.
SEQ ID NO: 679 is the determined cDNA sequence for clone 26894.

SEQ ID NO: 680 is the determined cDNA sequence for clone 26895.
SEQ ID NO: 681 is the determined cDNA sequence for clone 26897.
SEQ ID NO: 682 is the determined cDNA sequence for clone 26898.
SEQ ID NO: 683 is the determined cDNA sequence for clone 26899.
5 ~~SEQ ID NO: 684 is the determined cDNA sequence for clone 26900.~~
SEQ ID NO: 685 is the determined cDNA sequence for clone 26901.
SEQ ID NO: 686 is the determined cDNA sequence for clone 26903.
SEQ ID NO: 687 is the determined cDNA sequence for clone 26905.
SEQ ID NO: 688 is the determined cDNA sequence for clone 26906.
10 SEQ ID NO: 689 is the determined cDNA sequence for clone 26708.
SEQ ID NO: 690 is the determined cDNA sequence for clone 26709.
SEQ ID NO: 691 is the determined cDNA sequence for clone 26710.
SEQ ID NO: 692 is the determined cDNA sequence for clone 26711.
SEQ ID NO: 693 is the determined cDNA sequence for clone 26712.
15 SEQ ID NO: 694 is the determined cDNA sequence for clone 26713.
SEQ ID NO: 695 is the determined cDNA sequence for clone 26714.
SEQ ID NO: 696 is the determined cDNA sequence for clone 26715.
SEQ ID NO: 697 is the determined cDNA sequence for clone 26716.
SEQ ID NO: 698 is the determined cDNA sequence for clone 26717.
20 SEQ ID NO: 699 is the determined cDNA sequence for clone 26718.
SEQ ID NO: 700 is the determined cDNA sequence for clone 26719.
SEQ ID NO: 701 is the determined cDNA sequence for clone 26720.
SEQ ID NO: 702 is the determined cDNA sequence for clone 26721.
SEQ ID NO: 703 is the determined cDNA sequence for clone 26722.
25 SEQ ID NO: 704 is the determined cDNA sequence for clone 26723.
SEQ ID NO: 705 is the determined cDNA sequence for clone 26724.
SEQ ID NO: 706 is the determined cDNA sequence for clone 26725.
SEQ ID NO: 707 is the determined cDNA sequence for clone 26726.
SEQ ID NO: 708 is the determined cDNA sequence for clone 26727.
30 SEQ ID NO: 709 is the determined cDNA sequence for clone 26728.
SEQ ID NO: 710 is the determined cDNA sequence for clone 26729.

SEQ ID NO: 711 is the determined cDNA sequence for clone 26730.
SEQ ID NO: 712 is the determined cDNA sequence for clone 26731.
SEQ ID NO: 713 is the determined cDNA sequence for clone 26732.
SEQ ID NO: 714 is the determined cDNA sequence for clone 26733.1.
5 SEQ ID NO: 715 is the determined cDNA sequence for clone 26733.2.
SEQ ID NO: 716 is the determined cDNA sequence for clone 26734.
SEQ ID NO: 717 is the determined cDNA sequence for clone 26735.
SEQ ID NO: 718 is the determined cDNA sequence for clone 26736.
SEQ ID NO: 719 is the determined cDNA sequence for clone 26737.
10 SEQ ID NO: 720 is the determined cDNA sequence for clone 26738.
SEQ ID NO: 721 is the determined cDNA sequence for clone 26739.
SEQ ID NO: 722 is the determined cDNA sequence for clone 26741.
SEQ ID NO: 723 is the determined cDNA sequence for clone 26742.
SEQ ID NO: 724 is the determined cDNA sequence for clone 26743.
15 SEQ ID NO: 725 is the determined cDNA sequence for clone 26744.
SEQ ID NO: 726 is the determined cDNA sequence for clone 26745.
SEQ ID NO: 727 is the determined cDNA sequence for clone 26746.
SEQ ID NO: 728 is the determined cDNA sequence for clone 26747.
SEQ ID NO: 729 is the determined cDNA sequence for clone 26748.
20 SEQ ID NO: 730 is the determined cDNA sequence for clone 26749.
SEQ ID NO: 731 is the determined cDNA sequence for clone 26750.
SEQ ID NO: 732 is the determined cDNA sequence for clone 26751.
SEQ ID NO: 733 is the determined cDNA sequence for clone 26752.
SEQ ID NO: 734 is the determined cDNA sequence for clone 26753.
25 SEQ ID NO: 735 is the determined cDNA sequence for clone 26754.
SEQ ID NO: 736 is the determined cDNA sequence for clone 26755.
SEQ ID NO: 737 is the determined cDNA sequence for clone 26756.
SEQ ID NO: 738 is the determined cDNA sequence for clone 26757.
SEQ ID NO: 739 is the determined cDNA sequence for clone 26758.
30 SEQ ID NO: 740 is the determined cDNA sequence for clone 26759.
SEQ ID NO: 741 is the determined cDNA sequence for clone 26760.

SEQ ID NO: 742 is the determined cDNA sequence for clone 26761.

SEQ ID NO: 743 is the determined cDNA sequence for clone 26762.

SEQ ID NO: 744 is the determined cDNA sequence for clone 26763.

SEQ ID NO: 745 is the determined cDNA sequence for clone 26764.

5 ~~SEQ ID NO: 746 is the determined cDNA sequence for clone 26765.~~

SEQ ID NO: 747 is the determined cDNA sequence for clone 26766.

SEQ ID NO: 748 is the determined cDNA sequence for clone 26767.

SEQ ID NO: 749 is the determined cDNA sequence for clone 26768.

SEQ ID NO: 750 is the determined cDNA sequence for clone 26769.

10 SEQ ID NO: 751 is the determined cDNA sequence for clone 26770.

SEQ ID NO: 752 is the determined cDNA sequence for clone 26771.

SEQ ID NO: 753 is the determined cDNA sequence for clone 26772.

SEQ ID NO: 754 is the determined cDNA sequence for clone 26773.

SEQ ID NO: 755 is the determined cDNA sequence for clone 26774.

15 SEQ ID NO: 756 is the determined cDNA sequence for clone 26775.

SEQ ID NO: 757 is the determined cDNA sequence for clone 26776.

SEQ ID NO: 758 is the determined cDNA sequence for clone 26777.

SEQ ID NO: 759 is the determined cDNA sequence for clone 26778.

SEQ ID NO: 760 is the determined cDNA sequence for clone 26779.

20 SEQ ID NO: 761 is the determined cDNA sequence for clone 26781.

SEQ ID NO: 762 is the determined cDNA sequence for clone 26782.

SEQ ID NO: 763 is the determined cDNA sequence for clone 26783.

SEQ ID NO: 764 is the determined cDNA sequence for clone 26784.

SEQ ID NO: 765 is the determined cDNA sequence for clone 26785.

25 SEQ ID NO: 766 is the determined cDNA sequence for clone 26786.

SEQ ID NO: 767 is the determined cDNA sequence for clone 26787.

SEQ ID NO: 768 is the determined cDNA sequence for clone 26788.

SEQ ID NO: 769 is the determined cDNA sequence for clone 26790.

SEQ ID NO: 770 is the determined cDNA sequence for clone 26791.

30 SEQ ID NO: 771 is the determined cDNA sequence for clone 26792.

SEQ ID NO: 772 is the determined cDNA sequence for clone 26793.

- SEQ ID NO: 773 is the determined cDNA sequence for clone 26794.
SEQ ID NO: 774 is the determined cDNA sequence for clone 26795.
SEQ ID NO: 775 is the determined cDNA sequence for clone 26796.
SEQ ID NO: 776 is the determined cDNA sequence for clone 26797.
5 SEQ ID NO: 777 is the determined cDNA sequence for clone 26798.
SEQ ID NO: 778 is the determined cDNA sequence for clone 26800.
SEQ ID NO: 779 is the determined cDNA sequence for clone 26801.
SEQ ID NO: 780 is the determined cDNA sequence for clone 26802.
SEQ ID NO: 781 is the determined cDNA sequence for clone 26803.
10 SEQ ID NO: 782 is the determined cDNA sequence for clone 26804.
SEQ ID NO: 783 is the amino acid sequence for L773P.
SEQ ID NO: 784 is the determined DNA sequence of the L773P
expression construct.
SEQ ID NO: 785 is the determined DNA sequence of the L773PA
15 expression construct.
SEQ ID NO: 786 is a predicted amino acid sequence for L552S.
SEQ ID NO: 787 is a predicted amino acid sequence for L840P.
SEQ ID NO: 788 is the full-length cDNA sequence for L548S.
SEQ ID NO: 789 is the amino acid sequence encoded by SEQ ID NO:
20 788.
SEQ ID NO: 790 is an extended cDNA sequence for L552S.
SEQ ID NO: 791 is the predicted amino acid sequence encoded by the
cDNA sequence of SEQ ID NO: 790.
SEQ ID NO: 792 is the determined cDNA sequence for an isoform of
25 L552S.
SEQ ID NO: 793 is the predicted amino acid sequence encoded by SEQ
ID NO: 792.
SEQ ID NO: 794 is an extended cDNA sequence for L840P.
SEQ ID NO: 795 is the predicted amino acid sequence encoded by SEQ
30 ID NO: 794.
SEQ ID NO: 796 is an extended cDNA sequence for L801P.

SEQ ID NO: 797 is a first predicted amino acid sequence encoded by
SEQ ID NO: 796.

SEQ ID NO: 798 is a second predicted amino acid sequence encoded by
SEQ ID NO: 796.

5 ~~SEQ ID NO: 799 is a third predicted amino acid sequence encoded by~~
SEQ ID NO: 796.

SEQ ID NO: 800 is the determined full-length sequence for L844P.

SEQ ID NO: 801 is the 5' consensus cDNA sequence for L551S.

SEQ ID NO: 802 is the 3' consensus cDNA sequence for L551S.

10 SEQ ID NO: 803 is the cDNA sequence for STY8.

SEQ ID NO: 804 is an extended cDNA sequence for L551S.

SEQ ID NO: 805 is the amino acid sequence for STY8.

SEQ ID NO: 806 is the extended amino acid sequence for L551S.

15 SEQ ID NO: 807 is the determined full-length cDNA sequence for
L773P.

SEQ ID NO: 808 is the full-length cDNA sequence of L552S.

SEQ ID NO: 809 is the full-length amino acid sequence of L552S.

SEQ ID NO: 810 is the determined cDNA sequence of clone 50989.

SEQ ID NO: 811 is the determined cDNA sequence of clone 50990.

20 SEQ ID NO: 812 is the determined cDNA sequence of clone 50992.

SEQ ID NO: 813-824 are the determined cDNA sequences for clones
isolated from lung tumor tissue.

SEQ ID NO: 825 is the determined cDNA sequence for the full-length
L551S clone 54305.

25 SEQ ID NO: 826 is the determined cDNA sequence for the full-length
L551S clone 54298.

SEQ ID NO: 827 is the full-length amino acid sequence for L551S.

DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for using the compositions, for example in the therapy and diagnosis of cancer, such as lung cancer. Certain illustrative compositions described
5 herein include lung tumor polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies, antigen presenting cells (APCs) and/or immune system cells (*e.g.*, T cells). A "lung tumor protein," as the term is used herein, refers generally to a protein that is expressed in lung tumor cells at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in a normal
10 tissue, as determined using a representative assay provided herein. Certain lung tumor proteins are tumor proteins that react detectably (within an immunoassay, such as an ELISA or Western blot) with antisera of a patient afflicted with lung cancer.

Therefore, in accordance with the above, and as described further below, the present invention provides illustrative polynucleotide compositions having
15 sequences set forth in SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283,
20 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826, illustrative polypeptide compositions having amino acid sequences set forth in SEQ ID NO: 786, 787, 791, 793, 795, 797-799, 806, 809 and 827, antibody compositions capable of binding such polypeptides, and numerous additional embodiments employing such compositions, for example in the
25 detection, diagnosis and/or therapy of human lung cancer.

POLYNUCLEOTIDE COMPOSITIONS

As used herein, the terms "DNA segment" and "polynucleotide" refer to a DNA molecule that has been isolated free of total genomic DNA of a particular species. Therefore, a DNA segment encoding a polypeptide refers to a DNA segment
30 that contains one or more coding sequences yet is substantially isolated away from, or

purified free from, total genomic DNA of the species from which the DNA segment is obtained. Included within the terms "DNA segment" and "polynucleotide" are DNA segments and smaller fragments of such segments, and also recombinant vectors, including, for example, plasmids, cosmids, phagemids, phage, viruses, and the like.

5 ~~As will be understood by those skilled in the art, the DNA segments of~~
this invention can include genomic sequences, extra-genomic and plasmid-encoded sequences and smaller engineered gene segments that express, or may be adapted to express, proteins, polypeptides, peptides and the like. Such segments may be naturally isolated, or modified synthetically by the hand of man.

10 "Isolated," as used herein, means that a polynucleotide is substantially away from other coding sequences, and that the DNA segment does not contain large portions of unrelated coding DNA, such as large chromosomal fragments or other functional genes or polypeptide coding regions. Of course, this refers to the DNA segment as originally isolated, and does not exclude genes or coding regions later added
15 to the segment by the hand of man.

As will be recognized by the skilled artisan, polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic, cDNA or synthetic) or RNA molecules. RNA molecules include HnRNA molecules, which contain introns and correspond to a DNA molecule in a one-to-one manner, and
20 mRNA molecules, which do not contain introns. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (*i.e.*, an endogenous
25 sequence that encodes a lung tumor protein or a portion thereof) or may comprise a variant, or a biological or antigenic functional equivalent of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions, as further described below, preferably such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native tumor protein. The
30 effect on the immunogenicity of the encoded polypeptide may generally be assessed as

described herein. The term "variants" also encompasses homologous genes of xenogenic origin.

When comparing polynucleotide or polypeptide sequences, two sequences are said to be "identical" if the sequence of nucleotides or amino acids in the two sequences is the same when aligned for maximum correspondence, as described below. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A "comparison window" as used herein, refers to a segment of at least about 20 contiguous positions, usually 30 to about 75, 40 to about 50, in which a sequence may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned.

Optimal alignment of sequences for comparison may be conducted using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. This program embodies several alignment schemes described in the following references: Dayhoff, M.O. (1978) A model of evolutionary change in proteins – Matrices for detecting distant relationships. In Dayhoff, M.O. (ed.) *Atlas of Protein Sequence and Structure*, National Biomedical Research Foundation, Washington DC Vol. 5, Suppl. 3, pp. 345-358; Hein J. (1990) *Unified Approach to Alignment and Phylogenies* pp. 626-645 *Methods in Enzymology* vol. 183, Academic Press, Inc., San Diego, CA; Higgins, D.G. and Sharp, P.M. (1989) *CABIOS* 5:151-153; Myers, E.W. and Muller W. (1988) *CABIOS* 4:11-17; Robinson, E.D. (1971) *Comb. Theor* 11:105; Santou, N. Nes, M. (1987) *Mol. Biol. Evol.* 4:406-425; Sneath, P.H.A. and Sokal, R.R. (1973) *Numerical Taxonomy – the Principles and Practice of Numerical Taxonomy*, Freeman Press, San Francisco, CA; Wilbur, W.J. and Lipman, D.J. (1983) *Proc. Natl. Acad., Sci. USA* 80:726-730.

Alternatively, optimal alignment of sequences for comparison may be conducted by the local identity algorithm of Smith and Waterman (1981) *Add. APL. Math* 2:482, by the identity alignment algorithm of Needleman and Wunsch (1970) *J. Mol. Biol.* 48:443, by the search for similarity methods of Pearson and Lipman (1988) *Proc. Natl. Acad. Sci. USA* 85: 2444, by computerized implementations of these algorithms (GAP, BESTFIT, BLAST, FASTA, and TFASTA in the Wisconsin Genetics

Software Package, Genetics Computer Group (GCG), 575 Science Dr., Madison, WI), or by inspection.

One preferred example of algorithms that are suitable for determining percent sequence identity and sequence similarity are the BLAST and BLAST 2.0 algorithms, which are described in Altschul *et al.* (1990) *Nucl. Acids Res.* 25:3389-3402 and Altschul *et al.* (1990) *J. Mol. Biol.* 215:403-410, respectively. BLAST and BLAST 2.0 can be used, for example with the parameters described herein, to determine percent sequence identity for the polynucleotides and polypeptides of the invention. Software for performing BLAST analyses is publicly available through the National Center for Biotechnology Information. In one illustrative example, cumulative scores can be calculated using, for nucleotide sequences, the parameters M (reward score for a pair of matching residues; always >0) and N (penalty score for mismatching residues; always <0). For amino acid sequences, a scoring matrix can be used to calculate the cumulative score. Extension of the word hits in each direction are halted when: the cumulative alignment score falls off by the quantity X from its maximum achieved value; the cumulative score goes to zero or below, due to the accumulation of one or more negative-scoring residue alignments; or the end of either sequence is reached. The BLAST algorithm parameters W, T and X determine the sensitivity and speed of the alignment. The BLASTN program (for nucleotide sequences) uses as defaults a wordlength (W) of 11, and expectation (E) of 10, and the BLOSUM62 scoring matrix (see Henikoff and Henikoff (1989) *Proc. Natl. Acad. Sci. USA* 89:10915) alignments, (B) of 50, expectation (E) of 10, M=5, N=-4 and a comparison of both strands.

Preferably, the "percentage of sequence identity" is determined by comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the comparison window may comprise additions or deletions (*i.e.*, gaps) of 20 percent or less, usually 5 to 15 percent, or 10 to 12 percent, as compared to the reference sequences (which does not comprise additions or deletions) for optimal alignment of the two sequences. The percentage is calculated by determining the number of positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched positions by the

total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Therefore, the present invention encompasses polynucleotide and polypeptide sequences having substantial identity to the sequences disclosed herein, for example those comprising at least 50% sequence identity, preferably at least 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, or 99% or higher, sequence identity compared to a polynucleotide or polypeptide sequence of this invention using the methods described herein, (*e.g.*, BLAST analysis using standard parameters, as described below). One skilled in this art will recognize that these values can be appropriately adjusted to determine corresponding identity of proteins encoded by two nucleotide sequences by taking into account codon degeneracy, amino acid similarity, reading frame positioning and the like.

In additional embodiments, the present invention provides isolated polynucleotides and polypeptides comprising various lengths of contiguous stretches of sequence identical to or complementary to one or more of the sequences disclosed herein. For example, polynucleotides are provided by this invention that comprise at least about 15, 20, 30, 40, 50, 75, 100, 150, 200, 300, 400, 500 or 1000 or more contiguous nucleotides of one or more of the sequences disclosed herein as well as all intermediate lengths there between. It will be readily understood that "intermediate lengths", in this context, means any length between the quoted values, such as 16, 17, 18, 19, *etc.*; 21, 22, 23, *etc.*; 30, 31, 32, *etc.*; 50, 51, 52, 53, *etc.*; 100, 101, 102, 103, *etc.*; 150, 151, 152, 153, *etc.*; including all integers through 200-500; 500-1,000, and the like.

The polynucleotides of the present invention, or fragments thereof, regardless of the length of the coding sequence itself, may be combined with other DNA sequences, such as promoters, polyadenylation signals, additional restriction enzyme sites, multiple cloning sites, other coding segments, and the like, such that their overall length may vary considerably. It is therefore contemplated that a nucleic acid fragment of almost any length may be employed, with the total length preferably being limited by the ease of preparation and use in the intended recombinant DNA protocol. For example, illustrative DNA segments with total lengths of about 10,000, about 5000,

about 3000, about 2,000, about 1,000, about 500, about 200, about 100, about 50 base pairs in length, and the like, (including all intermediate lengths) are contemplated to be useful in many implementations of this invention.

In other embodiments, the present invention is directed to
5 ~~polynucleotides that are capable of hybridizing under moderately stringent conditions to~~
a polynucleotide sequence provided herein, or a fragment thereof, or a complementary sequence thereof. Hybridization techniques are well known in the art of molecular biology. For purposes of illustration, suitable moderately stringent conditions for
10 testing the hybridization of a polynucleotide of this invention with other polynucleotides include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and 0.2X SSC containing 0.1% SDS.

Moreover, it will be appreciated by those of ordinary skill in the art that,
15 as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the
20 polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or
25 database sequence comparison).

PROBES AND PRIMERS

In other embodiments of the present invention, the polynucleotide sequences provided herein can be advantageously used as probes or primers for nucleic acid hybridization. As such, it is contemplated that nucleic acid segments that comprise
30 a sequence region of at least about 15 nucleotide long contiguous sequence that has the

same sequence as, or is complementary to, a 15 nucleotide long contiguous sequence disclosed herein will find particular utility. Longer contiguous identical or complementary sequences, *e.g.*, those of about 20, 30, 40, 50, 100, 200, 500, 1000 (including all intermediate lengths) and even up to full length sequences will also be of
5 use in certain embodiments.

The ability of such nucleic acid probes to specifically hybridize to a sequence of interest will enable them to be of use in detecting the presence of complementary sequences in a given sample. However, other uses are also envisioned, such as the use of the sequence information for the preparation of mutant species
10 primers, or primers for use in preparing other genetic constructions.

Polynucleotide molecules having sequence regions consisting of contiguous nucleotide stretches of 10-14, 15-20, 30, 50, or even of 100-200 nucleotides or so (including intermediate lengths as well), identical or complementary to a polynucleotide sequence disclosed herein, are particularly contemplated as
15 hybridization probes for use in, *e.g.*, Southern and Northern blotting. This would allow a gene product, or fragment thereof, to be analyzed, both in diverse cell types and also in various bacterial cells. The total size of fragment, as well as the size of the complementary stretch(es), will ultimately depend on the intended use or application of the particular nucleic acid segment. Smaller fragments will generally find use in
20 hybridization embodiments, wherein the length of the contiguous complementary region may be varied, such as between about 15 and about 100 nucleotides, but larger contiguous complementarity stretches may be used, according to the length complementary sequences one wishes to detect.

The use of a hybridization probe of about 15-25 nucleotides in length
25 allows the formation of a duplex molecule that is both stable and selective. Molecules having contiguous complementary sequences over stretches greater than 15 bases in length are generally preferred, though, in order to increase stability and selectivity of the hybrid, and thereby improve the quality and degree of specific hybrid molecules obtained. One will generally prefer to design nucleic acid molecules having gene-
30 complementary stretches of 15 to 25 contiguous nucleotides, or even longer where desired.

Hybridization probes may be selected from any portion of any of the sequences disclosed herein. All that is required is to review the sequence set forth in SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-
5 ~~128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178,~~
180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826, or to any continuous portion of the sequence, from about 15-25 nucleotides in
10 length up to and including the full length sequence, that one wishes to utilize as a probe or primer. The choice of probe and primer sequences may be governed by various factors. For example, one may wish to employ primers from towards the termini of the total sequence.

Small polynucleotide segments or fragments may be readily prepared by,
15 for example, directly synthesizing the fragment by chemical means, as is commonly practiced using an automated oligonucleotide synthesizer. Also, fragments may be obtained by application of nucleic acid reproduction technology, such as the PCRTM technology of U. S. Patent 4,683,202 (incorporated herein by reference), by introducing selected sequences into recombinant vectors for recombinant production, and by other
20 recombinant DNA techniques generally known to those of skill in the art of molecular biology.

The nucleotide sequences of the invention may be used for their ability to selectively form duplex molecules with complementary stretches of the entire gene or gene fragments of interest. Depending on the application envisioned, one will typically
25 desire to employ varying conditions of hybridization to achieve varying degrees of selectivity of probe towards target sequence. For applications requiring high selectivity, one will typically desire to employ relatively stringent conditions to form the hybrids, *e.g.*, one will select relatively low salt and/or high temperature conditions, such as provided by a salt concentration of from about 0.02 M to about 0.15 M salt at
30 temperatures of from about 50°C to about 70°C. Such selective conditions tolerate

little, if any, mismatch between the probe and the template or target strand, and would be particularly suitable for isolating related sequences.

Of course, for some applications, for example, where one desires to prepare mutants employing a mutant primer strand hybridized to an underlying
5 template, less stringent (reduced stringency) hybridization conditions will typically be needed in order to allow formation of the heteroduplex. In these circumstances, one may desire to employ salt conditions such as those of from about 0.15 M to about 0.9 M salt, at temperatures ranging from about 20°C to about 55°C. Cross-hybridizing species can thereby be readily identified as positively hybridizing signals with respect to control
10 hybridizations. In any case, it is generally appreciated that conditions can be rendered more stringent by the addition of increasing amounts of formamide, which serves to destabilize the hybrid duplex in the same manner as increased temperature. Thus, hybridization conditions can be readily manipulated, and thus will generally be a method of choice depending on the desired results.

15 POLYNUCLEOTIDE IDENTIFICATION AND CHARACTERIZATION

Polynucleotides may be identified, prepared and/or manipulated using any of a variety of well established techniques. For example, a polynucleotide may be identified, as described in more detail below, by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least two fold greater in a tumor
20 than in normal tissue, as determined using a representative assay provided herein). Such screens may be performed, for example, using a Synteni microarray (Palo Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena *et al.*, *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller *et al.*, *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997). Alternatively, polynucleotides may be
25 amplified from cDNA prepared from cells expressing the proteins described herein, such as lung tumor cells. Such polynucleotides may be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

An amplified portion of a polynucleotide of the present invention may be
30 used to isolate a full length gene from a suitable library (*e.g.*, a lung tumor cDNA

library) using well known techniques. Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. ~~Genomic libraries are preferred for obtaining introns and extending 5'~~ sequences.

For hybridization techniques, a partial sequence may be labeled (e.g., by nick-translation or end-labeling with ^{32}P) using well known techniques. A bacterial or bacteriophage library is then generally screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (see Sambrook *et al.*, *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences can then be assembled into a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments, using well known techniques.

Alternatively, there are numerous amplification techniques for obtaining a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length, have a GC content of at least 50% and anneal to the target sequence at temperatures of about 68°C to 72°C. The amplified region may be sequenced as described above, and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (see Triglia *et al.*, *Nucl. Acids Res.* 16:8186, 1988), which uses restriction enzymes to generate a fragment

in the known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of amplification with the same linker primer and a second primer specific to the known region. A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Another such technique is known as "rapid amplification of cDNA ends" or RACE. This technique involves the use of an internal primer and an external primer, which hybridizes to a polyA region or vector sequence, to identify sequences that are 5' and 3' of a known sequence. Additional techniques include capture PCR (Lagerstrom *et al.*, *PCR Methods Applic. 1*:111-19, 1991) and walking PCR (Parker *et al.*, *Nucl. Acids. Res. 19*:3055-60, 1991). Other methods employing amplification may also be employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database, such as that available from GenBank. Searches for overlapping ESTs may generally be performed using well known programs (*e.g.*, NCBI BLAST searches), and such ESTs may be used to generate a contiguous full length sequence. Full length DNA sequences may also be obtained by analysis of genomic fragments.

POLYNUCLEOTIDE EXPRESSION IN HOST CELLS

In other embodiments of the invention, polynucleotide sequences or fragments thereof which encode polypeptides of the invention, or fusion proteins or functional equivalents thereof, may be used in recombinant DNA molecules to direct expression of a polypeptide in appropriate host cells. Due to the inherent degeneracy of the genetic code, other DNA sequences that encode substantially the same or a functionally equivalent amino acid sequence may be produced and these sequences may be used to clone and express a given polypeptide.

As will be understood by those of skill in the art, it may be advantageous in some instances to produce polypeptide-encoding nucleotide sequences possessing non-naturally occurring codons. For example, codons preferred by a particular prokaryotic or eukaryotic host can be selected to increase the rate of protein expression or to produce a recombinant RNA transcript having desirable properties, such as a half-life which is longer than that of a transcript generated from the naturally occurring sequence.

Moreover, the polynucleotide sequences of the present invention can be engineered using methods generally known in the art in order to alter polypeptide encoding sequences for a variety of reasons, including but not limited to, alterations which modify the cloning, processing, and/or expression of the gene product. For example, DNA shuffling by random fragmentation and PCR reassembly of gene fragments and synthetic oligonucleotides may be used to engineer the nucleotide sequences. In addition, site-directed mutagenesis may be used to insert new restriction sites, alter glycosylation patterns, change codon preference, produce splice variants, or introduce mutations, and so forth.

In another embodiment of the invention, natural, modified, or recombinant nucleic acid sequences may be ligated to a heterologous sequence to encode a fusion protein. For example, to screen peptide libraries for inhibitors of polypeptide activity, it may be useful to encode a chimeric protein that can be recognized by a commercially available antibody. A fusion protein may also be engineered to contain a cleavage site located between the polypeptide-encoding sequence and the heterologous protein sequence, so that the polypeptide may be cleaved and purified away from the heterologous moiety.

Sequences encoding a desired polypeptide may be synthesized, in whole or in part, using chemical methods well known in the art (see Caruthers, M. H. *et al.* (1980) *Nucl. Acids Res. Symp. Ser.* 215-223, Horn, T. *et al.* (1980) *Nucl. Acids Res. Symp. Ser.* 225-232). Alternatively, the protein itself may be produced using chemical methods to synthesize the amino acid sequence of a polypeptide, or a portion thereof. For example, peptide synthesis can be performed using various solid-phase techniques (Roberge, J. Y. *et al.* (1995) *Science* 269:202-204) and automated synthesis may be

achieved, for example, using the ABI 431A Peptide Synthesizer (Perkin Elmer, Palo Alto, CA).

A newly synthesized peptide may be substantially purified by preparative high performance liquid chromatography (*e.g.*, Creighton, T. (1983) 5 Proteins, Structures and Molecular Principles, WH Freeman and Co., New York, N.Y.) or other comparable techniques available in the art. The composition of the synthetic peptides may be confirmed by amino acid analysis or sequencing (*e.g.*, the Edman degradation procedure). Additionally, the amino acid sequence of a polypeptide, or any part thereof, may be altered during direct synthesis and/or combined using chemical 10 methods with sequences from other proteins, or any part thereof, to produce a variant polypeptide.

In order to express a desired polypeptide, the nucleotide sequences encoding the polypeptide, or functional equivalents, may be inserted into appropriate expression vector, *i.e.*, a vector which contains the necessary elements for the 15 transcription and translation of the inserted coding sequence. Methods which are well known to those skilled in the art may be used to construct expression vectors containing sequences encoding a polypeptide of interest and appropriate transcriptional and translational control elements. These methods include *in vitro* recombinant DNA techniques, synthetic techniques, and *in vivo* genetic recombination. Such techniques 20 are described in Sambrook, J. *et al.* (1989) Molecular Cloning, A Laboratory Manual, Cold Spring Harbor Press, Plainview, N.Y., and Ausubel, F. M. *et al.* (1989) Current Protocols in Molecular Biology, John Wiley & Sons, New York, N.Y.

A variety of expression vector/host systems may be utilized to contain and express polynucleotide sequences. These include, but are not limited to, 25 microorganisms such as bacteria transformed with recombinant bacteriophage, plasmid, or cosmid DNA expression vectors; yeast transformed with yeast expression vectors; insect cell systems infected with virus expression vectors (*e.g.*, baculovirus); plant cell systems transformed with virus expression vectors (*e.g.*, cauliflower mosaic virus, CaMV; tobacco mosaic virus, TMV) or with bacterial expression vectors (*e.g.*, Ti or 30 pBR322 plasmids); or animal cell systems.

The "control elements" or "regulatory sequences" present in an expression vector are those non-translated regions of the vector--enhancers, promoters, 5' and 3' untranslated regions--which interact with host cellular proteins to carry out transcription and translation. Such elements may vary in their strength and specificity.

5 ~~Depending on the vector system and host utilized, any number of suitable transcription~~
and translation elements, including constitutive and inducible promoters, may be used. For example, when cloning in bacterial systems, inducible promoters such as the hybrid lacZ promoter of the PBLUESCRIPT phagemid (Stratagene, La Jolla, Calif.) or PSORT1 plasmid (Gibco BRL, Gaithersburg, MD) and the like may be used. In
10 mammalian cell systems, promoters from mammalian genes or from mammalian viruses are generally preferred. If it is necessary to generate a cell line that contains multiple copies of the sequence encoding a polypeptide, vectors based on SV40 or EBV may be advantageously used with an appropriate selectable marker.

In bacterial systems, a number of expression vectors may be selected
15 depending upon the use intended for the expressed polypeptide. For example, when large quantities are needed, for example for the induction of antibodies, vectors which direct high level expression of fusion proteins that are readily purified may be used. Such vectors include, but are not limited to, the multifunctional *E. coli* cloning and expression vectors such as BLUESCRIPT (Stratagene), in which the sequence encoding
20 the polypeptide of interest may be ligated into the vector in frame with sequences for the amino-terminal Met and the subsequent 7 residues of .beta.-galactosidase so that a hybrid protein is produced; pIN vectors (Van Heeke, G. and S. M. Schuster (1989) *J. Biol. Chem.* 264:5503-5509); and the like. pGEX Vectors (Promega, Madison, Wis.) may also be used to express foreign polypeptides as fusion proteins with glutathione S-
25 transferase (GST). In general, such fusion proteins are soluble and can easily be purified from lysed cells by adsorption to glutathione-agarose beads followed by elution in the presence of free glutathione. Proteins made in such systems may be designed to include heparin, thrombin, or factor XA protease cleavage sites so that the cloned polypeptide of interest can be released from the GST moiety at will.

30 In the yeast, *Saccharomyces cerevisiae*, a number of vectors containing constitutive or inducible promoters such as alpha factor, alcohol oxidase, and PGH may

be used. For reviews, see Ausubel *et al.* (supra) and Grant *et al.* (1987) *Methods Enzymol.* 153:516-544.

In cases where plant expression vectors are used, the expression of sequences encoding polypeptides may be driven by any of a number of promoters. For example, viral promoters such as the 35S and 19S promoters of CaMV may be used alone or in combination with the omega leader sequence from TMV (Takamatsu, N. (1987) *EMBO J.* 6:307-311. Alternatively, plant promoters such as the small subunit of RUBISCO or heat shock promoters may be used (Coruzzi, G. *et al.* (1984) *EMBO J.* 3:1671-1680; Broglie, R. *et al.* (1984) *Science* 224:838-843; and Winter, J. *et al.* (1991) *Results Probl. Cell Differ.* 17:85-105). These constructs can be introduced into plant cells by direct DNA transformation or pathogen-mediated transfection. Such techniques are described in a number of generally available reviews (see, for example, Hobbs, S. or Murry, L. E. in McGraw Hill Yearbook of Science and Technology (1992) McGraw Hill, New York, N.Y.; pp. 191-196).

An insect system may also be used to express a polypeptide of interest. For example, in one such system, Autographa californica nuclear polyhedrosis virus (AcNPV) is used as a vector to express foreign genes in *Spodoptera frugiperda* cells or in *Trichoplusia* larvae. The sequences encoding the polypeptide may be cloned into a non-essential region of the virus, such as the polyhedrin gene, and placed under control of the polyhedrin promoter. Successful insertion of the polypeptide-encoding sequence will render the polyhedrin gene inactive and produce recombinant virus lacking coat protein. The recombinant viruses may then be used to infect, for example, *S. frugiperda* cells or *Trichoplusia* larvae in which the polypeptide of interest may be expressed (Engelhard, E. K. *et al.* (1994) *Proc. Natl. Acad. Sci.* 91 :3224-3227).

In mammalian host cells, a number of viral-based expression systems are generally available. For example, in cases where an adenovirus is used as an expression vector, sequences encoding a polypeptide of interest may be ligated into an adenovirus transcription/translation complex consisting of the late promoter and tripartite leader sequence. Insertion in a non-essential E1 or E3 region of the viral genome may be used to obtain a viable virus which is capable of expressing the polypeptide in infected host cells (Logan, J. and Shenk, T. (1984) *Proc. Natl. Acad. Sci.* 81:3655-3659). In addition,

transcription enhancers, such as the Rous sarcoma virus (RSV) enhancer, may be used to increase expression in mammalian host cells.

Specific initiation signals may also be used to achieve more efficient translation of sequences encoding a polypeptide of interest. Such signals include the
5 ~~ATG initiation codon and adjacent sequences. In cases where sequences encoding the~~
polypeptide, its initiation codon, and upstream sequences are inserted into the appropriate expression vector, no additional transcriptional or translational control signals may be needed. However, in cases where only coding sequence, or a portion thereof, is inserted, exogenous translational control signals including the ATG initiation
10 codon should be provided. Furthermore, the initiation codon should be in the correct reading frame to ensure translation of the entire insert. Exogenous translational elements and initiation codons may be of various origins, both natural and synthetic. The efficiency of expression may be enhanced by the inclusion of enhancers which are appropriate for the particular cell system which is used, such as those described in the
15 literature (Scharf, D. *et al.* (1994) *Results Probl. Cell Differ.* 20:125-162).

In addition, a host cell strain may be chosen for its ability to modulate the expression of the inserted sequences or to process the expressed protein in the desired fashion. Such modifications of the polypeptide include, but are not limited to, acetylation, carboxylation, glycosylation, phosphorylation, lipidation, and acylation.
20 Post-translational processing which cleaves a "prepro" form of the protein may also be used to facilitate correct insertion, folding and/or function. Different host cells such as CHO, HeLa, MDCK, HEK293, and WI38, which have specific cellular machinery and characteristic mechanisms for such post-translational activities, may be chosen to ensure the correct modification and processing of the foreign protein.

25 For long-term, high-yield production of recombinant proteins, stable expression is generally preferred. For example, cell lines which stably express a polynucleotide of interest may be transformed using expression vectors which may contain viral origins of replication and/or endogenous expression elements and a selectable marker gene on the same or on a separate vector. Following the introduction
30 of the vector, cells may be allowed to grow for 1-2 days in an enriched media before they are switched to selective media. The purpose of the selectable marker is to confer

resistance to selection, and its presence allows growth and recovery of cells which successfully express the introduced sequences. Resistant clones of stably transformed cells may be proliferated using tissue culture techniques appropriate to the cell type.

Any number of selection systems may be used to recover transformed
5 cell lines. These include, but are not limited to, the herpes simplex virus thymidine kinase (Wigler, M. *et al.* (1977) *Cell* 11:223-32) and adenine phosphoribosyltransferase (Lowy, I. *et al.* (1990) *Cell* 22:817-23) genes which can be employed in tk.sup.- or apt.sup.- cells, respectively. Also, antimetabolite, antibiotic or herbicide resistance can be used as the basis for selection; for example, dhfr which confers resistance to
10 methotrexate (Wigler, M. *et al.* (1980) *Proc. Natl. Acad. Sci.* 77:3567-70); npt, which confers resistance to the aminoglycosides, neomycin and G-418 (Colbere-Garapin, F. *et al.* (1981) *J. Mol. Biol.* 150:1-14); and als or pat, which confer resistance to chlorsulfuron and phosphinotricin acetyltransferase, respectively (Murry, *supra*). Additional selectable genes have been described, for example, trpB, which allows cells
15 to utilize indole in place of tryptophan, or hisD, which allows cells to utilize histinol in place of histidine (Hartman, S. C. and R. C. Mulligan (1988) *Proc. Natl. Acad. Sci.* 85:8047-51). Recently, the use of visible markers has gained popularity with such markers as anthocyanins, beta-glucuronidase and its substrate GUS, and luciferase and its substrate luciferin, being widely used not only to identify transformants, but also to
20 quantify the amount of transient or stable protein expression attributable to a specific vector system (Rhodes, C. A. *et al.* (1995) *Methods Mol. Biol.* 55:121-131).

Although the presence/absence of marker gene expression suggests that the gene of interest is also present, its presence and expression may need to be confirmed. For example, if the sequence encoding a polypeptide is inserted within a
25 marker gene sequence, recombinant cells containing sequences can be identified by the absence of marker gene function. Alternatively, a marker gene can be placed in tandem with a polypeptide-encoding sequence under the control of a single promoter. Expression of the marker gene in response to induction or selection usually indicates expression of the tandem gene as well.

30 Alternatively, host cells which contain and express a desired polynucleotide sequence may be identified by a variety of procedures known to those of

skill in the art. These procedures include, but are not limited to, DNA-DNA or DNA-RNA hybridizations and protein bioassay or immunoassay techniques which include membrane, solution, or chip based technologies for the detection and/or quantification of nucleic acid or protein.

5 ~~A variety of protocols for detecting and measuring the expression of~~
polynucleotide-encoded products, using either polyclonal or monoclonal antibodies specific for the product are known in the art. Examples include enzyme-linked immunosorbent assay (ELISA), radioimmunoassay (RIA), and fluorescence activated cell sorting (FACS). A two-site, monoclonal-based immunoassay utilizing monoclonal
10 antibodies reactive to two non-interfering epitopes on a given polypeptide may be preferred for some applications, but a competitive binding assay may also be employed. These and other assays are described, among other places, in Hampton, R. *et al.* (1990; Serological Methods, a Laboratory Manual, APS Press, St Paul, Minn.) and Maddox, D. E. *et al.* (1983; *J. Exp. Med.* 158:1211-1216).

15 A wide variety of labels and conjugation techniques are known by those skilled in the art and may be used in various nucleic acid and amino acid assays. Means for producing labeled hybridization or PCR probes for detecting sequences related to polynucleotides include oligolabeling, nick translation, end-labeling or PCR amplification using a labeled nucleotide. Alternatively, the sequences, or any portions
20 thereof may be cloned into a vector for the production of an mRNA probe. Such vectors are known in the art, are commercially available, and may be used to synthesize RNA probes in vitro by addition of an appropriate RNA polymerase such as T7, T3, or SP6 and labeled nucleotides. These procedures may be conducted using a variety of commercially available kits. Suitable reporter molecules or labels, which may be used
25 include radionuclides, enzymes, fluorescent, chemiluminescent, or chromogenic agents as well as substrates, cofactors, inhibitors, magnetic particles, and the like.

Host cells transformed with a polynucleotide sequence of interest may be cultured under conditions suitable for the expression and recovery of the protein from cell culture. The protein produced by a recombinant cell may be secreted or contained
30 intracellularly depending on the sequence and/or the vector used. As will be understood by those of skill in the art, expression vectors containing polynucleotides of the

invention may be designed to contain signal sequences which direct secretion of the encoded polypeptide through a prokaryotic or eukaryotic cell membrane. Other recombinant constructions may be used to join sequences encoding a polypeptide of interest to nucleotide sequence encoding a polypeptide domain which will facilitate
5 purification of soluble proteins. Such purification facilitating domains include, but are not limited to, metal chelating peptides such as histidine-tryptophan modules that allow purification on immobilized metals, protein A domains that allow purification on immobilized immunoglobulin, and the domain utilized in the FLAGS extension/affinity purification system (Immunex Corp., Seattle, Wash.). The inclusion of cleavable linker
10 sequences such as those specific for Factor XA or enterokinase (Invitrogen, San Diego, Calif.) between the purification domain and the encoded polypeptide may be used to facilitate purification. One such expression vector provides for expression of a fusion protein containing a polypeptide of interest and a nucleic acid encoding 6 histidine residues preceding a thioredoxin or an enterokinase cleavage site. The histidine residues
15 facilitate purification on IMIAC (immobilized metal ion affinity chromatography) as described in Porath, J. *et al.* (1992, *Prot. Exp. Purif.* 3:263-281) while the enterokinase cleavage site provides a means for purifying the desired polypeptide from the fusion protein. A discussion of vectors which contain fusion proteins is provided in Kroll, D. J. *et al.* (1993; *DNA Cell Biol.* 12:441-453).

20 In addition to recombinant production methods, polypeptides of the invention, and fragments thereof, may be produced by direct peptide synthesis using solid-phase techniques (Merrifield J. (1963) *J. Am. Chem. Soc.* 85:2149-2154). Protein synthesis may be performed using manual techniques or by automation. Automated synthesis may be achieved, for example, using Applied Biosystems 431A Peptide
25 Synthesizer (Perkin Elmer). Alternatively, various fragments may be chemically synthesized separately and combined using chemical methods to produce the full length molecule.

SITE-SPECIFIC MUTAGENESIS

Site-specific mutagenesis is a technique useful in the preparation of
30 individual peptides, or biologically functional equivalent polypeptides, through specific

mutagenesis of the underlying polynucleotides that encode them. The technique, well-known to those of skill in the art, further provides a ready ability to prepare and test sequence variants, for example, incorporating one or more of the foregoing considerations, by introducing one or more nucleotide sequence changes into the DNA.

5 ~~Site-specific mutagenesis allows the production of mutants through the use of specific~~
oligonucleotide sequences which encode the DNA sequence of the desired mutation, as well as a sufficient number of adjacent nucleotides, to provide a primer sequence of sufficient size and sequence complexity to form a stable duplex on both sides of the deletion junction being traversed. Mutations may be employed in a selected
10 polynucleotide sequence to improve, alter, decrease, modify, or otherwise change the properties of the polynucleotide itself, and/or alter the properties, activity, composition, stability, or primary sequence of the encoded polypeptide.

In certain embodiments of the present invention, the inventors contemplate the mutagenesis of the disclosed polynucleotide sequences to alter one or
15 more properties of the encoded polypeptide, such as the antigenicity of a polypeptide vaccine. The techniques of site-specific mutagenesis are well-known in the art, and are widely used to create variants of both polypeptides and polynucleotides. For example, site-specific mutagenesis is often used to alter a specific portion of a DNA molecule. In such embodiments, a primer comprising typically about 14 to about 25 nucleotides or so
20 in length is employed, with about 5 to about 10 residues on both sides of the junction of the sequence being altered.

As will be appreciated by those of skill in the art, site-specific mutagenesis techniques have often employed a phage vector that exists in both a single stranded and double stranded form. Typical vectors useful in site-directed mutagenesis
25 include vectors such as the M13 phage. These phage are readily commercially-available and their use is generally well-known to those skilled in the art. Double-stranded plasmids are also routinely employed in site directed mutagenesis that eliminates the step of transferring the gene of interest from a plasmid to a phage.

In general, site-directed mutagenesis in accordance herewith is
30 performed by first obtaining a single-stranded vector or melting apart of two strands of a double-stranded vector that includes within its sequence a DNA sequence that

encodes the desired peptide. An oligonucleotide primer bearing the desired mutated sequence is prepared, generally synthetically. This primer is then annealed with the single-stranded vector, and subjected to DNA polymerizing enzymes such as *E. coli* polymerase I Klenow fragment, in order to complete the synthesis of the mutation-bearing strand. Thus, a heteroduplex is formed wherein one strand encodes the original non-mutated sequence and the second strand bears the desired mutation. This heteroduplex vector is then used to transform appropriate cells, such as *E. coli* cells, and clones are selected which include recombinant vectors bearing the mutated sequence arrangement.

10 The preparation of sequence variants of the selected peptide-encoding DNA segments using site-directed mutagenesis provides a means of producing potentially useful species and is not meant to be limiting as there are other ways in which sequence variants of peptides and the DNA sequences encoding them may be obtained. For example, recombinant vectors encoding the desired peptide sequence
15 may be treated with mutagenic agents, such as hydroxylamine, to obtain sequence variants. Specific details regarding these methods and protocols are found in the teachings of Maloy *et al.*, 1994; Segal, 1976; Prokop and Bajpai, 1991; Kuby, 1994; and Maniatis *et al.*, 1982, each incorporated herein by reference, for that purpose.

As used herein, the term "oligonucleotide directed mutagenesis
20 procedure" refers to template-dependent processes and vector-mediated propagation which result in an increase in the concentration of a specific nucleic acid molecule relative to its initial concentration, or in an increase in the concentration of a detectable signal, such as amplification. As used herein, the term "oligonucleotide directed mutagenesis procedure" is intended to refer to a process that involves the
25 template-dependent extension of a primer molecule. The term template dependent process refers to nucleic acid synthesis of an RNA or a DNA molecule wherein the sequence of the newly synthesized strand of nucleic acid is dictated by the well-known rules of complementary base pairing (see, for example, Watson, 1987). Typically, vector mediated methodologies involve the introduction of the nucleic acid fragment
30 into a DNA or RNA vector, the clonal amplification of the vector, and the recovery of

the amplified nucleic acid fragment. Examples of such methodologies are provided by U. S. Patent No. 4,237,224, specifically incorporated herein by reference in its entirety.

POLYNUCLEOTIDE AMPLIFICATION TECHNIQUES

~~A number of template dependent processes are available to amplify the~~

5 target sequences of interest present in a sample. One of the best known amplification methods is the polymerase chain reaction (PCR™) which is described in detail in U.S. Patent Nos. 4,683,195, 4,683,202 and 4,800,159, each of which is incorporated herein by reference in its entirety. Briefly, in PCR™, two primer sequences are prepared which are complementary to regions on opposite complementary strands of the target
10 sequence. An excess of deoxynucleoside triphosphates is added to a reaction mixture along with a DNA polymerase (*e.g.*, *Taq* polymerase). If the target sequence is present in a sample, the primers will bind to the target and the polymerase will cause the primers to be extended along the target sequence by adding on nucleotides. By raising and lowering the temperature of the reaction mixture, the extended primers will
15 dissociate from the target to form reaction products, excess primers will bind to the target and to the reaction product and the process is repeated. Preferably reverse transcription and PCR™ amplification procedure may be performed in order to quantify the amount of mRNA amplified. Polymerase chain reaction methodologies are well known in the art.

20 Another method for amplification is the ligase chain reaction (referred to as LCR), disclosed in Eur. Pat. Appl. Publ. No. 320,308 (specifically incorporated herein by reference in its entirety). In LCR, two complementary probe pairs are prepared, and in the presence of the target sequence, each pair will bind to opposite complementary strands of the target such that they abut. In the presence of a ligase, the
25 two probe pairs will link to form a single unit. By temperature cycling, as in PCR™, bound ligated units dissociate from the target and then serve as "target sequences" for ligation of excess probe pairs. U.S. Patent No. 4,883,750, incorporated herein by reference in its entirety, describes an alternative method of amplification similar to LCR for binding probe pairs to a target sequence.

Qbeta Replicase, described in PCT Intl. Pat. Appl. Publ. No. PCT/US87/00880, incorporated herein by reference in its entirety, may also be used as still another amplification method in the present invention. In this method, a replicative sequence of RNA that has a region complementary to that of a target is added to a
5 sample in the presence of an RNA polymerase. The polymerase will copy the replicative sequence that can then be detected.

An isothermal amplification method, in which restriction endonucleases and ligases are used to achieve the amplification of target molecules that contain nucleotide 5'-[α -thio]triphosphates in one strand of a restriction site (Walker *et al.*,
10 1992, incorporated herein by reference in its entirety), may also be useful in the amplification of nucleic acids in the present invention.

Strand Displacement Amplification (SDA) is another method of carrying out isothermal amplification of nucleic acids which involves multiple rounds of strand displacement and synthesis, *i.e.* nick translation. A similar method, called Repair Chain
15 Reaction (RCR) is another method of amplification which may be useful in the present invention and is involves annealing several probes throughout a region targeted for amplification, followed by a repair reaction in which only two of the four bases are present. The other two bases can be added as biotinylated derivatives for easy detection. A similar approach is used in SDA.

Sequences can also be detected using a cyclic probe reaction (CPR). In
20 CPR, a probe having a 3' and 5' sequences of non-target DNA and an internal or "middle" sequence of the target protein specific RNA is hybridized to DNA which is present in a sample. Upon hybridization, the reaction is treated with RNaseH, and the products of the probe are identified as distinctive products by generating a signal that is
25 released after digestion. The original template is annealed to another cycling probe and the reaction is repeated. Thus, CPR involves amplifying a signal generated by hybridization of a probe to a target gene specific expressed nucleic acid.

Still other amplification methods described in Great Britain Pat. Appl. No. 2 202 328, and in PCT Intl. Pat. Appl. Publ. No. PCT/US89/01025, each of which
30 is incorporated herein by reference in its entirety, may be used in accordance with the present invention. In the former application, "modified" primers are used in a PCR-

like, template and enzyme dependent synthesis. The primers may be modified by labeling with a capture moiety (*e.g.*, biotin) and/or a detector moiety (*e.g.*, enzyme). In the latter application, an excess of labeled probes is added to a sample. In the presence of the target sequence, the probe binds and is cleaved catalytically. After cleavage, the target sequence is released intact to be bound by excess probe. Cleavage of the labeled probe signals the presence of the target sequence.

Other nucleic acid amplification procedures include transcription-based amplification systems (TAS) (Kwoh *et al.*, 1989; PCT Intl. Pat. Appl. Publ. No. WO 88/10315, incorporated herein by reference in its entirety), including nucleic acid sequence based amplification (NASBA) and 3SR. In NASBA, the nucleic acids can be prepared for amplification by standard phenol/chloroform extraction, heat denaturation of a sample, treatment with lysis buffer and minispin columns for isolation of DNA and RNA or guanidinium chloride extraction of RNA. These amplification techniques involve annealing a primer that has sequences specific to the target sequence. Following polymerization, DNA/RNA hybrids are digested with RNase H while double stranded DNA molecules are heat-denatured again. In either case the single stranded DNA is made fully double stranded by addition of second target-specific primer, followed by polymerization. The double stranded DNA molecules are then multiply transcribed by a polymerase such as T7 or SP6. In an isothermal cyclic reaction, the RNAs are reverse transcribed into DNA, and transcribed once again with a polymerase such as T7 or SP6. The resulting products, whether truncated or complete, indicate target-specific sequences.

Eur. Pat. Appl. Publ. No. 329,822, incorporated herein by reference in its entirety, disclose a nucleic acid amplification process involving cyclically synthesizing single-stranded RNA ("ssRNA"), ssDNA, and double-stranded DNA (dsDNA), which may be used in accordance with the present invention. The ssRNA is a first template for a first primer oligonucleotide, which is elongated by reverse transcriptase (RNA-dependent DNA polymerase). The RNA is then removed from resulting DNA:RNA duplex by the action of ribonuclease H (RNase H, an RNase specific for RNA in a duplex with either DNA or RNA). The resultant ssDNA is a second template for a second primer, which also includes the sequences of an RNA polymerase

promoter (exemplified by T7 RNA polymerase) 5' to its homology to its template. This primer is then extended by DNA polymerase (exemplified by the large "Klenow" fragment of *E. coli* DNA polymerase I), resulting as a double-stranded DNA ("dsDNA") molecule, having a sequence identical to that of the original RNA between
5 the primers and having additionally, at one end, a promoter sequence. This promoter sequence can be used by the appropriate RNA polymerase to make many RNA copies of the DNA. These copies can then re-enter the cycle leading to very swift amplification. With proper choice of enzymes, this amplification can be done isothermally without addition of enzymes at each cycle. Because of the cyclical nature
10 of this process, the starting sequence can be chosen to be in the form of either DNA or RNA.

PCT Intl. Pat. Appl. Publ. No. WO 89/06700, incorporated herein by reference in its entirety, disclose a nucleic acid sequence amplification scheme based on the hybridization of a promoter/primer sequence to a target single-stranded DNA
15 ("ssDNA") followed by transcription of many RNA copies of the sequence. This scheme is not cyclic; *i.e.* new templates are not produced from the resultant RNA transcripts. Other amplification methods include "RACE" (Frohman, 1990), and "one-sided PCR" (Ohara, 1989) which are well-known to those of skill in the art.

Methods based on ligation of two (or more) oligonucleotides in the
20 presence of nucleic acid having the sequence of the resulting "di-oligonucleotide", thereby amplifying the di-oligonucleotide (Wu and Dean, 1996, incorporated herein by reference in its entirety), may also be used in the amplification of DNA sequences of the present invention.

BIOLOGICAL FUNCTIONAL EQUIVALENTS

25 Modification and changes may be made in the structure of the polynucleotides and polypeptides of the present invention and still obtain a functional molecule that encodes a polypeptide with desirable characteristics. As mentioned above, it is often desirable to introduce one or more mutations into a specific polynucleotide sequence. In certain circumstances, the resulting encoded polypeptide

sequence is altered by this mutation, or in other cases, the sequence of the polypeptide is unchanged by one or more mutations in the encoding polynucleotide.

When it is desirable to alter the amino acid sequence of a polypeptide to create an equivalent, or even an improved, second-generation molecule, the amino acid ~~changes may be achieved by changing one or more of the codons of the encoding DNA~~ sequence, according to Table 1.

For example, certain amino acids may be substituted for other amino acids in a protein structure without appreciable loss of interactive binding capacity with structures such as, for example, antigen-binding regions of antibodies or binding sites
10 on substrate molecules. Since it is the interactive capacity and nature of a protein that defines that protein's biological functional activity, certain amino acid sequence substitutions can be made in a protein sequence, and, of course, its underlying DNA coding sequence, and nevertheless obtain a protein with like properties. It is thus contemplated by the inventors that various changes may be made in the peptide
15 sequences of the disclosed compositions, or corresponding DNA sequences which encode said peptides without appreciable loss of their biological utility or activity.

TABLE 1

Amino Acids			Codons						
Alanine	Ala	A	GCA	GCC	GCG	GCU			
Cysteine	Cys	C	UGC	UGU					
Aspartic acid	Asp	D	GAC	GAU					
Glutamic acid	Glu	E	GAA	GAG					
Phenylalanine	Phe	F	UUC	UUU					
Glycine	Gly	G	GGA	GGC	GGG	GGU			
Histidine	His	H	CAC	CAU					
Isoleucine	Ile	I	AUA	AUC	AUU				
Lysine	Lys	K	AAA	AAG					
Leucine	Leu	L	UUA	UUG	CUA	CUC	CUG	CUU	
Methionine	Met	M	AUG						
Asparagine	Asn	N	AAC	AAU					
Proline	Pro	P	CCA	CCC	CCG	CCU			
Glutamine	Gln	Q	CAA	CAG					
Arginine	Arg	R	AGA	AGG	CGA	CGC	CGG	CGU	
Serine	Ser	S	AGC	AGU	UCA	UCC	UCG	UCU	
Threonine	Thr	T	ACA	ACC	ACG	ACU			
Valine	Val	V	GUA	GUC	GUG	GUU			
Tryptophan	Trp	W	UGG						
Tyrosine	Tyr	Y	UAC	UAU					

In making such changes, the hydrophatic index of amino acids may be considered. The importance of the hydrophatic amino acid index in conferring interactive biologic function on a protein is generally understood in the art (Kyte and Doolittle, 1982, incorporated herein by reference). It is accepted that the relative hydrophatic character of the amino acid contributes to the secondary structure of the resultant protein, which in turn defines the interaction of the protein with other molecules, for example, enzymes, substrates, receptors, DNA, antibodies, antigens, and the like. Each amino acid has been assigned a hydrophatic index on the basis of its hydrophobicity and charge characteristics (Kyte and Doolittle, 1982). These values are:

isoleucine (+4.5); valine (+4.2); leucine (+3.8); phenylalanine (+2.8); cysteine/cystine (+2.5); methionine (+1.9); alanine (+1.8); glycine (-0.4); threonine (-0.7); serine (-0.8); tryptophan (-0.9); tyrosine (-1.3); proline (-1.6); histidine (-3.2); glutamate (-3.5); glutamine (-3.5); aspartate (-3.5); asparagine (-3.5); lysine (-3.9); and arginine (-4.5).

It is known in the art that certain amino acids may be substituted by other amino acids having a similar hydropathic index or score and still result in a protein with similar biological activity, *i.e.* still obtain a biological functionally equivalent protein. In making such changes, the substitution of amino acids whose
10 hydropathic indices are within ± 2 is preferred, those within ± 1 are particularly preferred, and those within ± 0.5 are even more particularly preferred. It is also understood in the art that the substitution of like amino acids can be made effectively on the basis of hydrophilicity. U. S. Patent 4,554,101 (specifically incorporated herein by reference in its entirety), states that the greatest local average hydrophilicity of a
15 protein, as governed by the hydrophilicity of its adjacent amino acids, correlates with a biological property of the protein.

As detailed in U. S. Patent 4,554,101, the following hydrophilicity values have been assigned to amino acid residues: arginine (+3.0); lysine (+3.0); aspartate (+3.0 \pm 1); glutamate (+3.0 \pm 1); serine (+0.3); asparagine (+0.2); glutamine
20 (+0.2); glycine (0); threonine (-0.4); proline (-0.5 \pm 1); alanine (-0.5); histidine (-0.5); cysteine (-1.0); methionine (-1.3); valine (-1.5); leucine (-1.8); isoleucine (-1.8); tyrosine (-2.3); phenylalanine (-2.5); tryptophan (-3.4). It is understood that an amino acid can be substituted for another having a similar hydrophilicity value and still obtain a biologically equivalent, and in particular, an immunologically equivalent protein. In
25 such changes, the substitution of amino acids whose hydrophilicity values are within ± 2 is preferred, those within ± 1 are particularly preferred, and those within ± 0.5 are even more particularly preferred.

As outlined above, amino acid substitutions are generally therefore based on the relative similarity of the amino acid side-chain substituents, for example, their
30 hydrophobicity, hydrophilicity, charge, size, and the like. Exemplary substitutions that take various of the foregoing characteristics into consideration are well known to those

of skill in the art and include: arginine and lysine; glutamate and aspartate; serine and threonine; glutamine and asparagine; and valine, leucine and isoleucine.

In addition, any polynucleotide may be further modified to increase stability *in vivo*. Possible modifications include, but are not limited to, the addition of
5 flanking sequences at the 5' and/or 3' ends; the use of phosphorothioate or 2' O-methyl rather than phosphodiesterase linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutosine, as well as acetyl-methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

10 IN VIVO POLYNUCLEOTIDE DELIVERY TECHNIQUES

In additional embodiments, genetic constructs comprising one or more of the polynucleotides of the invention are introduced into cells *in vivo*. This may be achieved using any of a variety of well known approaches, several of which are outlined below for the purpose of illustration.

15 1. ADENOVIRUS

One of the preferred methods for *in vivo* delivery of one or more nucleic acid sequences involves the use of an adenovirus expression vector. "Adenovirus expression vector" is meant to include those constructs containing adenovirus sequences sufficient to (a) support packaging of the construct and (b) to express a
20 polynucleotide that has been cloned therein in a sense or antisense orientation. Of course, in the context of an antisense construct, expression does not require that the gene product be synthesized.

The expression vector comprises a genetically engineered form of an adenovirus. Knowledge of the genetic organization of adenovirus, a 36 kb, linear,
25 double-stranded DNA virus, allows substitution of large pieces of adenoviral DNA with foreign sequences up to 7 kb (Grunhaus and Horwitz, 1992). In contrast to retrovirus, the adenoviral infection of host cells does not result in chromosomal integration because adenoviral DNA can replicate in an episomal manner without potential genotoxicity. Also, adenoviruses are structurally stable, and no genome rearrangement

has been detected after extensive amplification. Adenovirus can infect virtually all epithelial cells regardless of their cell cycle stage. So far, adenoviral infection appears to be linked only to mild disease such as acute respiratory disease in humans.

Adenovirus is particularly suitable for use as a gene transfer vector ~~because of its mid-sized genome, ease of manipulation, high titer, wide target cell range~~ and high infectivity. Both ends of the viral genome contain 100-200 base pair inverted repeats (ITRs), which are *cis* elements necessary for viral DNA replication and packaging. The early (E) and late (L) regions of the genome contain different transcription units that are divided by the onset of viral DNA replication. The E1 region (E1A and E1B) encodes proteins responsible for the regulation of transcription of the viral genome and a few cellular genes. The expression of the E2 region (E2A and E2B) results in the synthesis of the proteins for viral DNA replication. These proteins are involved in DNA replication, late gene expression and host cell shut-off (Renan, 1990). The products of the late genes, including the majority of the viral capsid proteins, are expressed only after significant processing of a single primary transcript issued by the major late promoter (MLP). The MLP, (located at 16.8 m.u.) is particularly efficient during the late phase of infection, and all the mRNA's issued from this promoter possess a 5'-tripartite leader (TPL) sequence which makes them preferred mRNA's for translation.

In a current system, recombinant adenovirus is generated from homologous recombination between shuttle vector and provirus vector. Due to the possible recombination between two proviral vectors, wild-type adenovirus may be generated from this process. Therefore, it is critical to isolate a single clone of virus from an individual plaque and examine its genomic structure.

Generation and propagation of the current adenovirus vectors, which are replication deficient, depend on a unique helper cell line, designated 293, which was transformed from human embryonic kidney cells by Ad5 DNA fragments and constitutively expresses E1 proteins (Graham *et al.*, 1977). Since the E3 region is dispensable from the adenovirus genome (Jones and Shenk, 1978), the current adenovirus vectors, with the help of 293 cells, carry foreign DNA in either the E1, the D3 or both regions (Graham and Prevec, 1991). In nature, adenovirus can package

approximately 105% of the wild-type genome (Ghosh-Choudhury *et al.*, 1987), providing capacity for about 2 extra kB of DNA. Combined with the approximately 5.5 kB of DNA that is replaceable in the E1 and E3 regions, the maximum capacity of the current adenovirus vector is under 7.5 kB, or about 15% of the total length of the vector. More than 80% of the adenovirus viral genome remains in the vector backbone and is the source of vector-borne cytotoxicity. Also, the replication deficiency of the E1-deleted virus is incomplete. For example, leakage of viral gene expression has been observed with the currently available vectors at high multiplicities of infection (MOI) (Mulligan, 1993).

10 Helper cell lines may be derived from human cells such as human embryonic kidney cells, muscle cells, hematopoietic cells or other human embryonic mesenchymal or epithelial cells. Alternatively, the helper cells may be derived from the cells of other mammalian species that are permissive for human adenovirus. Such cells include, *e.g.*, Vero cells or other monkey embryonic mesenchymal or epithelial cells.

15 As stated above, the currently preferred helper cell line is 293.

 Recently, Racher *et al.* (1995) disclosed improved methods for culturing 293 cells and propagating adenovirus. In one format, natural cell aggregates are grown by inoculating individual cells into 1 liter siliconized spinner flasks (Techne, Cambridge, UK) containing 100-200 ml of medium. Following stirring at 40 rpm, the cell viability is estimated with trypan blue. In another format, Fibra-Cel microcarriers (Bibby Sterlin, Stone, UK) (5 g/l) is employed as follows. A cell inoculum, resuspended in 5 ml of medium, is added to the carrier (50 ml) in a 250 ml Erlenmeyer flask and left stationary, with occasional agitation, for 1 to 4 h. The medium is then replaced with 50 ml of fresh medium and shaking initiated. For virus production, cells are allowed to grow to about 80% confluence, after which time the medium is replaced (to 25% of the final volume) and adenovirus added at an MOI of 0.05. Cultures are left stationary overnight, following which the volume is increased to 100% and shaking commenced for another 72 h.

 Other than the requirement that the adenovirus vector be replication defective, or at least conditionally defective, the nature of the adenovirus vector is not believed to be crucial to the successful practice of the invention. The adenovirus may

be of any of the 42 different known serotypes or subgroups A-F. Adenovirus type 5 of subgroup C is the preferred starting material in order to obtain a conditional replication-defective adenovirus vector for use in the present invention, since Adenovirus type 5 is a human adenovirus about which a great deal of biochemical and genetic information is known, and it has historically been used for most constructions employing adenovirus as a vector.

As stated above, the typical vector according to the present invention is replication defective and will not have an adenovirus E1 region. Thus, it will be most convenient to introduce the polynucleotide encoding the gene of interest at the position from which the E1-coding sequences have been removed. However, the position of insertion of the construct within the adenovirus sequences is not critical to the invention. The polynucleotide encoding the gene of interest may also be inserted in lieu of the deleted E3 region in E3 replacement vectors as described by Karlsson *et al.* (1986) or in the E4 region where a helper cell line or helper virus complements the E4 defect.

Adenovirus is easy to grow and manipulate and exhibits broad host range *in vitro* and *in vivo*. This group of viruses can be obtained in high titers, *e.g.*, 10^9 - 10^{11} plaque-forming units per ml, and they are highly infective. The life cycle of adenovirus does not require integration into the host cell genome. The foreign genes delivered by adenovirus vectors are episomal and, therefore, have low genotoxicity to host cells. No side effects have been reported in studies of vaccination with wild-type adenovirus (Couch *et al.*, 1963; Top *et al.*, 1971), demonstrating their safety and therapeutic potential as *in vivo* gene transfer vectors.

Adenovirus vectors have been used in eukaryotic gene expression (Levrero *et al.*, 1991; Gomez-Foix *et al.*, 1992) and vaccine development (Grunhaus and Horwitz, 1992; Graham and Prevec, 1992). Recently, animal studies suggested that recombinant adenovirus could be used for gene therapy (Stratford-Perricaudet and Perricaudet, 1991; Stratford-Perricaudet *et al.*, 1990; Rich *et al.*, 1993). Studies in administering recombinant adenovirus to different tissues include trachea instillation (Rosenfeld *et al.*, 1991; Rosenfeld *et al.*, 1992), muscle injection (Ragot *et al.*, 1993),

peripheral intravenous injections (Herz and Gerard, 1993) and stereotactic inoculation into the brain (Le Gal La Salle *et al.*, 1993).

2. RETROVIRUSES

The retroviruses are a group of single-stranded RNA viruses characterized by an ability to convert their RNA to double-stranded DNA in infected cells by a process of reverse-transcription (Coffin, 1990). The resulting DNA then stably integrates into cellular chromosomes as a provirus and directs synthesis of viral proteins. The integration results in the retention of the viral gene sequences in the recipient cell and its descendants. The retroviral genome contains three genes, gag, pol, and env that code for capsid proteins, polymerase enzyme, and envelope components, respectively. A sequence found upstream from the gag gene contains a signal for packaging of the genome into virions. Two long terminal repeat (LTR) sequences are present at the 5' and 3' ends of the viral genome. These contain strong promoter and enhancer sequences and are also required for integration in the host cell genome (Coffin, 1990).

In order to construct a retroviral vector, a nucleic acid encoding one or more oligonucleotide or polynucleotide sequences of interest is inserted into the viral genome in the place of certain viral sequences to produce a virus that is replication-defective. In order to produce virions, a packaging cell line containing the gag, pol, and env genes but without the LTR and packaging components is constructed (Mann *et al.*, 1983). When a recombinant plasmid containing a cDNA, together with the retroviral LTR and packaging sequences is introduced into this cell line (by calcium phosphate precipitation for example), the packaging sequence allows the RNA transcript of the recombinant plasmid to be packaged into viral particles, which are then secreted into the culture media (Nicolas and Rubenstein, 1988; Temin, 1986; Mann *et al.*, 1983). The media containing the recombinant retroviruses is then collected, optionally concentrated, and used for gene transfer. Retroviral vectors are able to infect a broad variety of cell types. However, integration and stable expression require the division of host cells (Paskind *et al.*, 1975).

A novel approach designed to allow specific targeting of retrovirus vectors was recently developed based on the chemical modification of a retrovirus by the chemical addition of lactose residues to the viral envelope. This modification could permit the specific infection of hepatocytes *via* sialoglycoprotein receptors.

5 ~~A different approach to targeting of recombinant retroviruses was~~
designed in which biotinylated antibodies against a retroviral envelope protein and against a specific cell receptor were used. The antibodies were coupled *via* the biotin components by using streptavidin (Roux *et al.*, 1989). Using antibodies against major histocompatibility complex class I and class II antigens, they demonstrated the infection
10 of a variety of human cells that bore those surface antigens with an ecotropic virus *in vitro* (Roux *et al.*, 1989).

3. ADENO-ASSOCIATED VIRUSES

AAV (Ridgeway, 1988; Hermonat and Muzyczka, 1984) is a parovirus, discovered as a contamination of adenoviral stocks. It is a ubiquitous virus (antibodies
15 are present in 85% of the US human population) that has not been linked to any disease. It is also classified as a dependovirus, because its replications is dependent on the presence of a helper virus, such as adenovirus. Five serotypes have been isolated, of which AAV-2 is the best characterized. AAV has a single-stranded linear DNA that is encapsidated into capsid proteins VP1, VP2 and VP3 to form an icosahedral virion of
20 20 to 24 nm in diameter (Muzyczka and McLaughlin, 1988).

The AAV DNA is approximately 4.7 kilobases long. It contains two open reading frames and is flanked by two ITRs. There are two major genes in the AAV genome: *rep* and *cap*. The *rep* gene codes for proteins responsible for viral replications, whereas *cap* codes for capsid protein VP1-3. Each ITR forms a T-shaped
25 hairpin structure. These terminal repeats are the only essential *cis* components of the AAV for chromosomal integration. Therefore, the AAV can be used as a vector with all viral coding sequences removed and replaced by the cassette of genes for delivery. Three viral promoters have been identified and named p5, p19, and p40, according to their map position. Transcription from p5 and p19 results in production of rep proteins,

and transcription from p40 produces the capsid proteins (Hermonat and Muzyczka, 1984).

There are several factors that prompted researchers to study the possibility of using rAAV as an expression vector. One is that the requirements for delivering a gene to integrate into the host chromosome are surprisingly few. It is necessary to have the 145-bp ITRs, which are only 6% of the AAV genome. This leaves room in the vector to assemble a 4.5-kb DNA insertion. While this carrying capacity may prevent the AAV from delivering large genes, it is amply suited for delivering the antisense constructs of the present invention.

AAV is also a good choice of delivery vehicles due to its safety. There is a relatively complicated rescue mechanism: not only wild type adenovirus but also AAV genes are required to mobilize rAAV. Likewise, AAV is not pathogenic and not associated with any disease. The removal of viral coding sequences minimizes immune reactions to viral gene expression, and therefore, rAAV does not evoke an inflammatory response.

4. OTHER VIRAL VECTORS AS EXPRESSION CONSTRUCTS

Other viral vectors may be employed as expression constructs in the present invention for the delivery of oligonucleotide or polynucleotide sequences to a host cell. Vectors derived from viruses such as vaccinia virus (Ridgeway, 1988; Coupar *et al.*, 1988), lentiviruses, polio viruses and herpes viruses may be employed. They offer several attractive features for various mammalian cells (Friedmann, 1989; Ridgeway, 1988; Coupar *et al.*, 1988; Horwich *et al.*, 1990).

With the recent recognition of defective hepatitis B viruses, new insight was gained into the structure-function relationship of different viral sequences. *In vitro* studies showed that the virus could retain the ability for helper-dependent packaging and reverse transcription despite the deletion of up to 80% of its genome (Horwich *et al.*, 1990). This suggested that large portions of the genome could be replaced with foreign genetic material. The hepatotropism and persistence (integration) were particularly attractive properties for liver-directed gene transfer. Chang *et al.* (1991) introduced the chloramphenicol acetyltransferase (CAT) gene into duck hepatitis B

virus genome in the place of the polymerase, surface, and pre-surface coding sequences. It was cotransfected with wild-type virus into an avian hepatoma cell line. Culture media containing high titers of the recombinant virus were used to infect primary duckling hepatocytes. Stable CAT gene expression was detected for at least 24 days after transfection (Chang *et al.*, 1991).

5. NON-VIRAL VECTORS

In order to effect expression of the oligonucleotide or polynucleotide sequences of the present invention, the expression construct must be delivered into a cell. This delivery may be accomplished *in vitro*, as in laboratory procedures for transforming cells lines, or *in vivo* or *ex vivo*, as in the treatment of certain disease states. As described above, one preferred mechanism for delivery is *via* viral infection where the expression construct is encapsulated in an infectious viral particle.

Once the expression construct has been delivered into the cell the nucleic acid encoding the desired oligonucleotide or polynucleotide sequences may be positioned and expressed at different sites. In certain embodiments, the nucleic acid encoding the construct may be stably integrated into the genome of the cell. This integration may be in the specific location and orientation *via* homologous recombination (gene replacement) or it may be integrated in a random, non-specific location (gene augmentation). In yet further embodiments, the nucleic acid may be stably maintained in the cell as a separate, episomal segment of DNA. Such nucleic acid segments or "episomes" encode sequences sufficient to permit maintenance and replication independent of or in synchronization with the host cell cycle. How the expression construct is delivered to a cell and where in the cell the nucleic acid remains is dependent on the type of expression construct employed.

In certain embodiments of the invention, the expression construct comprising one or more oligonucleotide or polynucleotide sequences may simply consist of naked recombinant DNA or plasmids. Transfer of the construct may be performed by any of the methods mentioned above which physically or chemically permeabilize the cell membrane. This is particularly applicable for transfer *in vitro* but it may be applied to *in vivo* use as well. Dubensky *et al.* (1984) successfully injected

polyomavirus DNA in the form of calcium phosphate precipitates into liver and spleen of adult and newborn mice demonstrating active viral replication and acute infection. Benvenisty and Reshef (1986) also demonstrated that direct intraperitoneal injection of calcium phosphate-precipitated plasmids results in expression of the transfected genes.

5 It is envisioned that DNA encoding a gene of interest may also be transferred in a similar manner *in vivo* and express the gene product.

Another embodiment of the invention for transferring a naked DNA expression construct into cells may involve particle bombardment. This method depends on the ability to accelerate DNA-coated microprojectiles to a high velocity

10 allowing them to pierce cell membranes and enter cells without killing them (Klein *et al.*, 1987). Several devices for accelerating small particles have been developed. One such device relies on a high voltage discharge to generate an electrical current, which in turn provides the motive force (Yang *et al.*, 1990). The microprojectiles used have consisted of biologically inert substances such as tungsten or gold beads.

15 Selected organs including the liver, skin, and muscle tissue of rats and mice have been bombarded *in vivo* (Yang *et al.*, 1990; Zelenin *et al.*, 1991). This may require surgical exposure of the tissue or cells, to eliminate any intervening tissue between the gun and the target organ, *i.e.* *ex vivo* treatment. Again, DNA encoding a particular gene may be delivered *via* this method and still be incorporated by the present

20 invention.

ANTISENSE OLIGONUCLEOTIDES

The end result of the flow of genetic information is the synthesis of protein. DNA is transcribed by polymerases into messenger RNA and translated on the ribosome to yield a folded, functional protein. Thus there are several steps along the

25 route where protein synthesis can be inhibited. The native DNA segment coding for a polypeptide described herein, as all such mammalian DNA strands, has two strands: a sense strand and an antisense strand held together by hydrogen bonding. The messenger RNA coding for polypeptide has the same nucleotide sequence as the sense DNA strand except that the DNA thymidine is replaced by uridine. Thus, synthetic

antisense nucleotide sequences will bind to a mRNA and inhibit expression of the protein encoded by that mRNA.

The targeting of antisense oligonucleotides to mRNA is thus one mechanism to shut down protein synthesis, and, consequently, represents a powerful and targeted therapeutic approach. For example, the synthesis of polygalacturonase and the muscarine type 2 acetylcholine receptor are inhibited by antisense oligonucleotides directed to their respective mRNA sequences (U. S. Patent 5,739,119 and U. S. Patent 5,759,829, each specifically incorporated herein by reference in its entirety). Further, examples of antisense inhibition have been demonstrated with the nuclear protein cyclin, the multiple drug resistance gene (MDG1), ICAM-1, E-selectin, STK-1, striatal GABA_A receptor and human EGF (Jaskulski *et al.*, 1988; Vasanthakumar and Ahmed, 1989; Peris *et al.*, 1998; U. S. Patent 5,801,154; U. S. Patent 5,789,573; U. S. Patent 5,718,709 and U. S. Patent 5,610,288, each specifically incorporated herein by reference in its entirety). Antisense constructs have also been described that inhibit and can be used to treat a variety of abnormal cellular proliferations, *e.g.* cancer (U. S. Patent 5,747,470; U. S. Patent 5,591,317 and U. S. Patent 5,783,683, each specifically incorporated herein by reference in its entirety).

Therefore, in exemplary embodiments, the invention provides oligonucleotide sequences that comprise all, or a portion of, any sequence that is capable of specifically binding to polynucleotide sequence described herein, or a complement thereof. In one embodiment, the antisense oligonucleotides comprise DNA or derivatives thereof. In another embodiment, the oligonucleotides comprise RNA or derivatives thereof. In a third embodiment, the oligonucleotides are modified DNAs comprising a phosphorothioated modified backbone. In a fourth embodiment, the oligonucleotide sequences comprise peptide nucleic acids or derivatives thereof. In each case, preferred compositions comprise a sequence region that is complementary, and more preferably substantially-complementary, and even more preferably, completely complementary to one or more portions of polynucleotides disclosed herein.

Selection of antisense compositions specific for a given gene sequence is based upon analysis of the chosen target sequence (*i.e.* in these illustrative examples the rat and human sequences) and determination of secondary structure, T_m , binding

energy, relative stability, and antisense compositions were selected based upon their relative inability to form dimers, hairpins, or other secondary structures that would reduce or prohibit specific binding to the target mRNA in a host cell.

Highly preferred target regions of the mRNA, are those which are at or
5 near the AUG translation initiation codon, and those sequences which were substantially complementary to 5' regions of the mRNA. These secondary structure analyses and target site selection considerations were performed using v.4 of the OLIGO primer analysis software (Rychlik, 1997) and the BLASTN 2.0.5 algorithm software (Altschul *et al.*, 1997).

10 The use of an antisense delivery method employing a short peptide vector, termed MPG (27 residues), is also contemplated. The MPG peptide contains a hydrophobic domain derived from the fusion sequence of HIV gp41 and a hydrophilic domain from the nuclear localization sequence of SV40 T-antigen (Morris *et al.*, 1997). It has been demonstrated that several molecules of the MPG peptide coat the antisense
15 oligonucleotides and can be delivered into cultured mammalian cells in less than 1 hour with relatively high efficiency (90%). Further, the interaction with MPG strongly increases both the stability of the oligonucleotide to nuclease and the ability to cross the plasma membrane (Morris *et al.*, 1997).

20 RIBOZYMES

Although proteins traditionally have been used for catalysis of nucleic
acids, another class of macromolecules has emerged as useful in this endeavor. Ribozymes are RNA-protein complexes that cleave nucleic acids in a site-specific fashion. Ribozymes have specific catalytic domains that possess endonuclease activity (Kim and Cech, 1987; Gerlach *et al.*, 1987; Forster and Symons, 1987). For example, a
25 large number of ribozymes accelerate phosphoester transfer reactions with a high degree of specificity, often cleaving only one of several phosphoesters in an oligonucleotide substrate (Cech *et al.*, 1981; Michel and Westhof, 1990; Reinhold-Hurek and Shub, 1992). This specificity has been attributed to the requirement that the substrate bind via specific base-pairing interactions to the internal guide sequence
30 ("IGS") of the ribozyme prior to chemical reaction.

Ribozyme catalysis has primarily been observed as part of sequence-specific cleavage/ligation reactions involving nucleic acids (Joyce, 1989; Cech *et al.*, 1981). For example, U. S. Patent No. 5,354,855 (specifically incorporated herein by reference) reports that certain ribozymes can act as endonucleases with a sequence specificity greater than that of known ribonucleases and approaching that of the DNA restriction enzymes. Thus, sequence-specific ribozyme-mediated inhibition of gene expression may be particularly suited to therapeutic applications (Scanlon *et al.*, 1991; Sarver *et al.*, 1990). Recently, it was reported that ribozymes elicited genetic changes in some cells lines to which they were applied; the altered genes included the oncogenes H-ras, c-fos and genes of HIV. Most of this work involved the modification of a target mRNA, based on a specific mutant codon that is cleaved by a specific ribozyme.

Six basic varieties of naturally-occurring enzymatic RNAs are known presently. Each can catalyze the hydrolysis of RNA phosphodiester bonds *in trans* (and thus can cleave other RNA molecules) under physiological conditions. In general, enzymatic nucleic acids act by first binding to a target RNA. Such binding occurs through the target binding portion of a enzymatic nucleic acid which is held in close proximity to an enzymatic portion of the molecule that acts to cleave the target RNA. Thus, the enzymatic nucleic acid first recognizes and then binds a target RNA through complementary base-pairing, and once bound to the correct site, acts enzymatically to cut the target RNA. Strategic cleavage of such a target RNA will destroy its ability to direct synthesis of an encoded protein. After an enzymatic nucleic acid has bound and cleaved its RNA target, it is released from that RNA to search for another target and can repeatedly bind and cleave new targets.

The enzymatic nature of a ribozyme is advantageous over many technologies, such as antisense technology (where a nucleic acid molecule simply binds to a nucleic acid target to block its translation) since the concentration of ribozyme necessary to affect a therapeutic treatment is lower than that of an antisense oligonucleotide. This advantage reflects the ability of the ribozyme to act enzymatically. Thus, a single ribozyme molecule is able to cleave many molecules of target RNA. In addition, the ribozyme is a highly specific inhibitor, with the specificity of inhibition depending not only on the base pairing mechanism of binding to the target

RNA, but also on the mechanism of target RNA cleavage. Single mismatches, or base-substitutions, near the site of cleavage can completely eliminate catalytic activity of a ribozyme. Similar mismatches in antisense molecules do not prevent their action (Woolf *et al.*, 1992). Thus, the specificity of action of a ribozyme is greater than that of
5 an antisense oligonucleotide binding the same RNA site.

The enzymatic nucleic acid molecule may be formed in a hammerhead, hairpin, a hepatitis δ virus, group I intron or RNaseP RNA (in association with an RNA guide sequence) or Neurospora VS RNA motif. Examples of hammerhead motifs are described by Rossi *et al.* (1992). Examples of hairpin motifs are described by Hampel
10 *et al.* (Eur. Pat. Appl. Publ. No. EP 0360257), Hampel and Tritz (1989), Hampel *et al.* (1990) and U. S. Patent 5,631,359 (specifically incorporated herein by reference). An example of the hepatitis δ virus motif is described by Perrotta and Been (1992); an example of the RNaseP motif is described by Guerrier-Takada *et al.* (1983); Neurospora VS RNA ribozyme motif is described by Collins (Saville and Collins,
15 1990; Saville and Collins, 1991; Collins and Olive, 1993); and an example of the Group I intron is described in (U. S. Patent 4,987,071, specifically incorporated herein by reference). All that is important in an enzymatic nucleic acid molecule of this invention is that it has a specific substrate binding site which is complementary to one or more of the target gene RNA regions, and that it have nucleotide sequences within or
20 surrounding that substrate binding site which impart an RNA cleaving activity to the molecule. Thus the ribozyme constructs need not be limited to specific motifs mentioned herein.

In certain embodiments, it may be important to produce enzymatic cleaving agents which exhibit a high degree of specificity for the RNA of a desired
25 target, such as one of the sequences disclosed herein. The enzymatic nucleic acid molecule is preferably targeted to a highly conserved sequence region of a target mRNA. Such enzymatic nucleic acid molecules can be delivered exogenously to specific cells as required. Alternatively, the ribozymes can be expressed from DNA or RNA vectors that are delivered to specific cells.

30 Small enzymatic nucleic acid motifs (*e.g.*, of the hammerhead or the hairpin structure) may also be used for exogenous delivery. The simple structure of

these molecules increases the ability of the enzymatic nucleic acid to invade targeted regions of the mRNA structure. Alternatively, catalytic RNA molecules can be expressed within cells from eukaryotic promoters (*e.g.*, Scanlon *et al.*, 1991; Kashani-Sabet *et al.*, 1992; Dropulic *et al.*, 1992; Weerasinghe *et al.*, 1991; Ojwang *et al.*, 1992; Chen *et al.*, 1992, Barver *et al.*, 1990). ~~Those skilled in the art realize that any~~ ribozyme can be expressed in eukaryotic cells from the appropriate DNA vector. The activity of such ribozymes can be augmented by their release from the primary transcript by a second ribozyme (Int. Pat. Appl. Publ. No. WO 93/23569, and Int. Pat. Appl. Publ. No. WO 94/02595, both hereby incorporated by reference; Ohkawa *et al.*, 10 1992; Taira *et al.*, 1991; and Ventura *et al.*, 1993).

Ribozymes may be added directly, or can be complexed with cationic lipids, lipid complexes, packaged within liposomes, or otherwise delivered to target cells. The RNA or RNA complexes can be locally administered to relevant tissues *ex vivo*, or *in vivo* through injection, aerosol inhalation, infusion pump or stent, with or 15 without their incorporation in biopolymers.

Ribozymes may be designed as described in Int. Pat. Appl. Publ. No. WO 93/23569 and Int. Pat. Appl. Publ. No. WO 94/02595, each specifically incorporated herein by reference) and synthesized to be tested *in vitro* and *in vivo*, as described. Such ribozymes can also be optimized for delivery. While specific 20 examples are provided, those in the art will recognize that equivalent RNA targets in other species can be utilized when necessary.

Hammerhead or hairpin ribozymes may be individually analyzed by computer folding (Jaeger *et al.*, 1989) to assess whether the ribozyme sequences fold into the appropriate secondary structure. Those ribozymes with unfavorable 25 intramolecular interactions between the binding arms and the catalytic core are eliminated from consideration. Varying binding arm lengths can be chosen to optimize activity. Generally, at least 5 or so bases on each arm are able to bind to, or otherwise interact with, the target RNA.

Ribozymes of the hammerhead or hairpin motif may be designed to 30 anneal to various sites in the mRNA message, and can be chemically synthesized. The method of synthesis used follows the procedure for normal RNA synthesis as described

in Usman *et al.* (1987) and in Scaringe *et al.* (1990) and makes use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. Average stepwise coupling yields are typically >98%. Hairpin ribozymes may be synthesized in two parts and annealed to reconstruct an active ribozyme (Chowrira and Burke, 1992). Ribozymes may be modified extensively to enhance stability by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-fluoro, 2'-O-methyl, 2'-H (for a review see *e.g.*, Usman and Cedergren, 1992). Ribozymes may be purified by gel electrophoresis using general methods or by high pressure liquid chromatography and resuspended in water.

10 Ribozyme activity can be optimized by altering the length of the ribozyme binding arms, or chemically synthesizing ribozymes with modifications that prevent their degradation by serum ribonucleases (see *e.g.*, Int. Pat. Appl. Publ. No. WO 92/07065; Perrault *et al.*, 1990; Pieken *et al.*, 1991; Usman and Cedergren, 1992; Int. Pat. Appl. Publ. No. WO 93/15187; Int. Pat. Appl. Publ. No. WO 91/03162; Eur. Pat. Appl. Publ. No. 92110298.4; U. S. Patent 5,334,711; and Int. Pat. Appl. Publ. No. WO 94/13688, which describe various chemical modifications that can be made to the sugar moieties of enzymatic RNA molecules), modifications which enhance their efficacy in cells, and removal of stem II bases to shorten RNA synthesis times and reduce chemical requirements.

20 Sullivan *et al.* (Int. Pat. Appl. Publ. No. WO 94/02595) describes the general methods for delivery of enzymatic RNA molecules. Ribozymes may be administered to cells by a variety of methods known to those familiar to the art, including, but not restricted to, encapsulation in liposomes, by iontophoresis, or by incorporation into other vehicles, such as hydrogels, cyclodextrins, biodegradable nanocapsules, and bioadhesive microspheres. For some indications, ribozymes may be directly delivered *ex vivo* to cells or tissues with or without the aforementioned vehicles. Alternatively, the RNA/vehicle combination may be locally delivered by direct inhalation, by direct injection or by use of a catheter, infusion pump or stent. Other routes of delivery include, but are not limited to, intravascular, intramuscular, subcutaneous or joint injection, aerosol inhalation, oral (tablet or pill form), topical, systemic, ocular, intraperitoneal and/or intrathecal delivery. More detailed descriptions

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of ribozyme delivery and administration are provided in Int. Pat. Appl. Publ. No. WO 94/02595 and Int. Pat. Appl. Publ. No. WO 93/23569, each specifically incorporated herein by reference.

Another means of accumulating high concentrations of a ribozyme(s) within cells is to incorporate the ribozyme encoding sequences into a DNA expression vector. Transcription of the ribozyme sequences are driven from a promoter for eukaryotic RNA polymerase I (pol I), RNA polymerase II (pol II), or RNA polymerase III (pol III). Transcripts from pol II or pol III promoters will be expressed at high levels in all cells; the levels of a given pol II promoter in a given cell type will depend on the nature of the gene regulatory sequences (enhancers, silencers, *etc.*) present nearby. Prokaryotic RNA polymerase promoters may also be used, providing that the prokaryotic RNA polymerase enzyme is expressed in the appropriate cells (Elroy-Stein and Moss, 1990; Gao and Huang, 1993; Lieber *et al.*, 1993; Zhou *et al.*, 1990). Ribozymes expressed from such promoters can function in mammalian cells (*e.g.* Kashani-Saber *et al.*, 1992; Ojwang *et al.*, 1992; Chen *et al.*, 1992; Yu *et al.*, 1993; L'Huillier *et al.*, 1992; Lisiewicz *et al.*, 1993). Such transcription units can be incorporated into a variety of vectors for introduction into mammalian cells, including but not restricted to, plasmid DNA vectors, viral DNA vectors (such as adenovirus or adeno-associated vectors), or viral RNA vectors (such as retroviral, semliki forest virus, sindbis virus vectors).

Ribozymes may be used as diagnostic tools to examine genetic drift and mutations within diseased cells. They can also be used to assess levels of the target RNA molecule. The close relationship between ribozyme activity and the structure of the target RNA allows the detection of mutations in any region of the molecule which alters the base-pairing and three-dimensional structure of the target RNA. By using multiple ribozymes, one may map nucleotide changes which are important to RNA structure and function *in vitro*, as well as in cells and tissues. Cleavage of target RNAs with ribozymes may be used to inhibit gene expression and define the role (essentially) of specified gene products in the progression of disease. In this manner, other genetic targets may be defined as important mediators of the disease. These studies will lead to better treatment of the disease progression by affording the possibility of combinational

therapies (e.g., multiple ribozymes targeted to different genes, ribozymes coupled with known small molecule inhibitors, or intermittent treatment with combinations of ribozymes and/or other chemical or biological molecules). Other *in vitro* uses of ribozymes are well known in the art, and include detection of the presence of mRNA associated with an IL-5 related condition. Such RNA is detected by determining the presence of a cleavage product after treatment with a ribozyme using standard methodology.

PEPTIDE NUCLEIC ACIDS

In certain embodiments, the inventors contemplate the use of peptide nucleic acids (PNAs) in the practice of the methods of the invention. PNA is a DNA mimic in which the nucleobases are attached to a pseudopeptide backbone (Good and Nielsen, 1997). PNA is able to be utilized in a number methods that traditionally have used RNA or DNA. Often PNA sequences perform better in techniques than the corresponding RNA or DNA sequences and have utilities that are not inherent to RNA or DNA. A review of PNA including methods of making, characteristics of, and methods of using, is provided by Corey (1997) and is incorporated herein by reference. As such, in certain embodiments, one may prepare PNA sequences that are complementary to one or more portions of the ACE mRNA sequence, and such PNA compositions may be used to regulate, alter, decrease, or reduce the translation of ACE-specific mRNA, and thereby alter the level of ACE activity in a host cell to which such PNA compositions have been administered.

PNAs have 2-aminoethyl-glycine linkages replacing the normal phosphodiester backbone of DNA (Nielsen *et al.*, 1991; Hanvey *et al.*, 1992; Hyrup and Nielsen, 1996; Neilsen, 1996). This chemistry has three important consequences: firstly, in contrast to DNA or phosphorothioate oligonucleotides, PNAs are neutral molecules; secondly, PNAs are achiral, which avoids the need to develop a stereoselective synthesis; and thirdly, PNA synthesis uses standard Boc (Dueholm *et al.*, 1994) or Fmoc (Thomson *et al.*, 1995) protocols for solid-phase peptide synthesis, although other methods, including a modified Merrifield method, have been used (Christensen *et al.*, 1995).

PNA monomers or ready-made oligomers are commercially available from PerSeptive Biosystems (Framingham, MA). PNA syntheses by either Boc or Fmoc protocols are straightforward using manual or automated protocols (Norton *et al.*, 1995). The manual protocol lends itself to the production of chemically modified PNAs

~~5 or the simultaneous synthesis of families of closely related PNAs~~

As with peptide synthesis, the success of a particular PNA synthesis will depend on the properties of the chosen sequence. For example, while in theory PNAs can incorporate any combination of nucleotide bases, the presence of adjacent purines can lead to deletions of one or more residues in the product. In expectation of this
10 difficulty, it is suggested that, in producing PNAs with adjacent purines, one should repeat the coupling of residues likely to be added inefficiently. This should be followed by the purification of PNAs by reverse-phase high-pressure liquid chromatography (Norton *et al.*, 1995) providing yields and purity of product similar to those observed during the synthesis of peptides.

15 Modifications of PNAs for a given application may be accomplished by coupling amino acids during solid-phase synthesis or by attaching compounds that contain a carboxylic acid group to the exposed N-terminal amine. Alternatively, PNAs can be modified after synthesis by coupling to an introduced lysine or cysteine. The ease with which PNAs can be modified facilitates optimization for better solubility or
20 for specific functional requirements. Once synthesized, the identity of PNAs and their derivatives can be confirmed by mass spectrometry. Several studies have made and utilized modifications of PNAs (Norton *et al.*, 1995; Haaime *et al.*, 1996; Stetsenko *et al.*, 1996; Petersen *et al.*, 1995; Ulmann *et al.*, 1996; Koch *et al.*, 1995; Orum *et al.*, 1995; Footer *et al.*, 1996; Griffith *et al.*, 1995; Kremsky *et al.*, 1996; Pardridge *et al.*,
25 1995; Boffa *et al.*, 1995; Landsdorp *et al.*, 1996; Gambacorti-Passerini *et al.*, 1996; Armitage *et al.*, 1997; Seeger *et al.*, 1997; Ruskowski *et al.*, 1997). U.S. Patent No. 5,700,922 discusses PNA-DNA-PNA chimeric molecules and their uses in diagnostics, modulating protein in organisms, and treatment of conditions susceptible to therapeutics.

30 In contrast to DNA and RNA, which contain negatively charged linkages, the PNA backbone is neutral. In spite of this dramatic alteration, PNAs

recognize complementary DNA and RNA by Watson-Crick pairing (Egholm *et al.*, 1993), validating the initial modeling by Nielsen *et al.* (1991). PNAs lack 3' to 5' polarity and can bind in either parallel or antiparallel fashion, with the antiparallel mode being preferred (Egholm *et al.*, 1993).

5 Hybridization of DNA oligonucleotides to DNA and RNA is destabilized by electrostatic repulsion between the negatively charged phosphate backbones of the complementary strands. By contrast, the absence of charge repulsion in PNA-DNA or PNA-RNA duplexes increases the melting temperature (T_m) and reduces the dependence of T_m on the concentration of mono- or divalent cations
10 (Nielsen *et al.*, 1991). The enhanced rate and affinity of hybridization are significant because they are responsible for the surprising ability of PNAs to perform strand invasion of complementary sequences within relaxed double-stranded DNA. In addition, the efficient hybridization at inverted repeats suggests that PNAs can recognize secondary structure effectively within double-stranded DNA. Enhanced
15 recognition also occurs with PNAs immobilized on surfaces, and Wang *et al.* have shown that support-bound PNAs can be used to detect hybridization events (Wang *et al.*, 1996).

One might expect that tight binding of PNAs to complementary sequences would also increase binding to similar (but not identical) sequences, reducing
20 the sequence specificity of PNA recognition. As with DNA hybridization, however, selective recognition can be achieved by balancing oligomer length and incubation temperature. Moreover, selective hybridization of PNAs is encouraged by PNA-DNA hybridization being less tolerant of base mismatches than DNA-DNA hybridization. For example, a single mismatch within a 16 bp PNA-DNA duplex can reduce the T_m by
25 up to 15°C (Egholm *et al.*, 1993). This high level of discrimination has allowed the development of several PNA-based strategies for the analysis of point mutations (Wang *et al.*, 1996; Carlsson *et al.*, 1996; Thiede *et al.*, 1996; Webb and Hurskainen, 1996; Perry-O'Keefe *et al.*, 1996).

High-affinity binding provides clear advantages for molecular
30 recognition and the development of new applications for PNAs. For example, 11-13 nucleotide PNAs inhibit the activity of telomerase, a ribonucleo-protein that extends

telomere ends using an essential RNA template, while the analogous DNA oligomers do not (Norton *et al.*, 1996).

Neutral PNAs are more hydrophobic than analogous DNA oligomers, and this can lead to difficulty solubilizing them at neutral pH, especially if the PNAs have a high purine content or if they have the potential to form secondary structures. Their solubility can be enhanced by attaching one or more positive charges to the PNA termini (Nielsen *et al.*, 1991).

Findings by Allfrey and colleagues suggest that strand invasion will occur spontaneously at sequences within chromosomal DNA (Boffa *et al.*, 1995; Boffa *et al.*, 1996). These studies targeted PNAs to triplet repeats of the nucleotides CAG and used this recognition to purify transcriptionally active DNA (Boffa *et al.*, 1995) and to inhibit transcription (Boffa *et al.*, 1996). This result suggests that if PNAs can be delivered within cells then they will have the potential to be general sequence-specific regulators of gene expression. Studies and reviews concerning the use of PNAs as antisense and anti-gene agents include Nielsen *et al.* (1993b), Hanvey *et al.* (1992), and Good and Nielsen (1997). Koppelhus *et al.* (1997) have used PNAs to inhibit HIV-1 inverse transcription, showing that PNAs may be used for antiviral therapies.

Methods of characterizing the antisense binding properties of PNAs are discussed in Rose (1993) and Jensen *et al.* (1997). Rose uses capillary gel electrophoresis to determine binding of PNAs to their complementary oligonucleotide, measuring the relative binding kinetics and stoichiometry. Similar types of measurements were made by Jensen *et al.* using BIAcore™ technology.

Other applications of PNAs include use in DNA strand invasion (Nielsen *et al.*, 1991), antisense inhibition (Hanvey *et al.*, 1992), mutational analysis (Orum *et al.*, 1993), enhancers of transcription (Mollegaard *et al.*, 1994), nucleic acid purification (Orum *et al.*, 1995), isolation of transcriptionally active genes (Boffa *et al.*, 1995), blocking of transcription factor binding (Vickers *et al.*, 1995), genome cleavage (Veselkov *et al.*, 1996), biosensors (Wang *et al.*, 1996), *in situ* hybridization (Thisted *et al.*, 1996), and in a alternative to Southern blotting (Perry-O'Keefe, 1996).

POLYPEPTIDE COMPOSITIONS

The present invention, in other aspects, provides polypeptide compositions. Generally, a polypeptide of the invention will be an isolated polypeptide (or an epitope, variant, or active fragment thereof) derived from a mammalian species.

- 5 Preferably, the polypeptide is encoded by a polynucleotide sequence disclosed herein or a sequence which hybridizes under moderately stringent conditions to a polynucleotide sequence disclosed herein. Alternatively, the polypeptide may be defined as a polypeptide which comprises a contiguous amino acid sequence from an amino acid sequence disclosed herein, or which polypeptide comprises an entire amino acid
10 sequence disclosed herein.

In the present invention, a polypeptide composition is also understood to comprise one or more polypeptides that are immunologically reactive with antibodies generated against a polypeptide of the invention, particularly a polypeptide having the amino acid sequence disclosed in SEQ ID NO: 786, 787, 791, 793, 795, 797-799, 806
15 or 809, or to active fragments, or to variants or biological functional equivalents thereof.

Likewise, a polypeptide composition of the present invention is understood to comprise one or more polypeptides that are capable of eliciting antibodies that are immunologically reactive with one or more polypeptides encoded by one or
20 more contiguous nucleic acid sequences contained in SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266,
25 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826, or to active fragments, or to variants thereof, or to one or more nucleic acid sequences which hybridize to one or more of these sequences under conditions of moderate to high stringency. Particularly illustrative polypeptides include the amino acid sequences disclosed in SEQ ID NO:
30 786, 787, 791, 793, 795, 797-799, 806, 809 and 827.

As used herein, an active fragment of a polypeptide includes a whole or a portion of a polypeptide which is modified by conventional techniques, *e.g.*, mutagenesis, or by addition, deletion, or substitution, but which active fragment exhibits substantially the same structure function, antigenicity, etc., as a polypeptide as described herein.

In certain illustrative embodiments, the polypeptides of the invention will comprise at least an immunogenic portion of a lung tumor protein or a variant thereof, as described herein. As noted above, a "lung tumor protein" is a protein that is expressed by lung tumor cells. Proteins that are lung tumor proteins also react detectably within an immunoassay (such as an ELISA) with antisera from a patient with lung cancer. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of a protein that is recognized (*i.e.*, specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid residues of a lung tumor protein or a variant thereof. Certain preferred immunogenic portions include peptides in which an N-terminal leader sequence and/or transmembrane domain have been deleted. Other preferred immunogenic portions may contain a small N- and/or C-terminal deletion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids), relative to the mature protein.

Immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for the ability to react with antigen-specific antibodies, antisera and/or T-cell lines or clones. As used herein, antisera and antibodies are "antigen-specific" if they specifically bind to an antigen (*i.e.*, they react with the protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera and antibodies may be prepared as described herein, and using well

known techniques. An immunogenic portion of a native lung tumor protein is a portion that reacts with such antisera and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (*e.g.*, in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is
5 similar to or greater than the reactivity of the full length polypeptide. Such screens may generally be performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the
10 sera to the immobilized polypeptide. Unbound sera may then be removed and bound antibodies detected using, for example, ¹²⁵I-labeled Protein A.

As noted above, a composition may comprise a variant of a native lung tumor protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native lung tumor protein in one or more substitutions, deletions, additions
15 and/or insertions, such that the immunogenicity of the polypeptide is not substantially diminished. In other words, the ability of a variant to react with antigen-specific antisera may be enhanced or unchanged, relative to the native protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native protein. Such variants may generally be identified by modifying one of the above
20 polypeptide sequences and evaluating the reactivity of the modified polypeptide with antigen-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids) has been
25 removed from the N- and/or C-terminal of the mature protein.

Polypeptide variants encompassed by the present invention include those exhibiting at least about 70%, 75%, 80%, 85%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% or more identity (determined as described above) to the polypeptides disclosed herein.

30 Preferably, a variant contains conservative substitutions. A "conservative substitution" is one in which an amino acid is substituted for another

- amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydropathic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine.
- 10 Other groups of amino acids that may represent conservative changes include: (1) ala, pro, gly, glu, asp, gln, asn, ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. In a preferred embodiment, variant polypeptides differ from a native sequence by substitution, deletion or addition of five amino acids or fewer.
- 15 Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino acids that have minimal influence on the immunogenicity, secondary structure and hydropathic nature of the polypeptide.

As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein, which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (e.g., poly-His), or to enhance binding of the polypeptide to a solid support. For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

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Polypeptides may be prepared using any of a variety of well known techniques. Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression vectors known to those of ordinary skill in the art. Expression may be achieved in any appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host cells include prokaryotes, yeast, and higher eukaryotic cells, such as mammalian cells and plant cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian

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cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having less than about 100 amino acids, and generally less than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. See Merrifield, *J. Am. Chem. Soc.* 85:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Perkin Elmer/Applied BioSystems Division (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises at least one polypeptide as described herein and an unrelated sequence, such as a known tumor protein. A fusion partner may, for example, assist in providing T helper epitopes (an immunological fusion partner), preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide

components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as linkers include those disclosed in Maratea *et al.*, *Gene* 40:39-46, 1985; Murphy *et al.*, *Proc. Natl. Acad. Sci. USA* 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino acids in length. Linker sequences are not required when the first and second polypeptides have non-essential N-terminal amino acid regions that can be used to separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

Fusion proteins are also provided. Such proteins comprise a polypeptide as described herein together with an unrelated immunogenic protein. Preferably the

immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (*see, for example, Stoute et al. New Engl. J. Med., 336:86-91, 1997*).

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium *Haemophilus influenza B* (WO 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (*e.g.*, the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in *E. coli* (thus functioning as an expression enhancer). The lipid tail ensures optimal presentation of the antigen to antigen presenting cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemagglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the *LytA* gene; *Gene 43:265-292, 1986*). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (*see Biotechnology 10:795-798, 1992*). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-terminal region starting at residue 178. A particularly preferred repeat portion incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that

is removed from its original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector that is not a part of the natural environment.

BINDING AGENTS

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to a lung tumor protein. As used herein, an antibody, or antigen-binding fragment thereof, is said to "specifically bind" to a lung tumor protein if it reacts at a detectable level (within, for example, an ELISA) with a lung tumor protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a complex is formed. The ability to bind may be evaluated by, for example, determining a binding constant for the formation of the complex. The binding constant is the value obtained when the concentration of the complex is divided by the product of the component concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about 10^3 L/mol. The binding constant may be determined using methods well known in the art.

Binding agents may be further capable of differentiating between patients with and without a cancer, such as lung cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to a lung tumor protein will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal indicating the absence of the disease in at least about 90% of individuals without the cancer. To determine whether a binding agent satisfies this requirement, biological samples (e.g., blood, sera, sputum, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a

statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

5 Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. *See, e.g.,* Harlow
10 and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide
15 is initially injected into any of a wide variety of mammals (*e.g.,* mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The
20 immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

25 Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, *Eur. J. Immunol.* 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the desired specificity (*i.e.,* reactivity with the polypeptide of interest). Such cell lines may
30 be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a

myeloma cell fusion partner, preferably one that is syngeneic with the immunized animal. A variety of fusion techniques may be employed. For example, the spleen cells and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, colonies of hybrids are observed. Single colonies are selected and their culture supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

10 Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse. Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by
15 conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process in, for example, an affinity chromatography step.

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be
20 prepared using standard techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988) and digested by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

25 Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include ^{90}Y , ^{123}I , ^{125}I , ^{131}I , ^{186}Re , ^{188}Re , ^{211}At , and ^{212}Bi . Preferred drugs include methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers
30 include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diphtheria

toxin, cholera toxin, gelonin, *Pseudomonas* exotoxin, *Shigella* toxin, and pokeweed antiviral protein.

A therapeutic agent may be coupled (*e.g.*, covalently bonded) to a suitable monoclonal antibody either directly or indirectly (*e.g.*, via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulfhydryl group, on one may be capable of reacting with a carbonyl-containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (*e.g.*, a halide) on the other.

Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

It will be evident to those skilled in the art that a variety of bifunctional or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulfhydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, *e.g.*, U.S. Patent No. 4,671,958, to Rodwell *et al.*

Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction of a disulfide bond (*e.g.*, U.S. Patent No. 4,489,710, to Spitler), by irradiation of a photolabile bond (*e.g.*, U.S. Patent No. 4,625,014, to Senter *et al.*), by hydrolysis of derivatized amino acid side chains (*e.g.*, U.S. Patent No. 4,638,045, to Kohn *et al.*), by

serum complement-mediated hydrolysis (*e.g.*, U.S. Patent No. 4,671,958, to Rodwell *et al.*), and acid-catalyzed hydrolysis (*e.g.*, U.S. Patent No. 4,569,789, to Blattler *et al.*).

It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In

5 ~~another embodiment, more than one type of agent may be coupled to one antibody~~

Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or linkers that provide multiple sites for attachment can be used. Alternatively, a carrier can be used.

10 A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (*e.g.*, U.S. Patent No. 4,507,234, to Kato *et al.*), peptides and polysaccharides such as aminodextran (*e.g.*, U.S. Patent No. 4,699,784, to Shih *et al.*). A carrier may also bear an agent by noncovalent bonding or by encapsulation, such as within a
15 liposome vesicle (*e.g.*, U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be formed from chelating compounds that include those containing nitrogen and sulfur
20 atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison *et al.* discloses representative chelating compounds and their synthesis.

A variety of routes of administration for the antibodies and immunoconjugates may be used. Typically, administration will be intravenous,
25 intramuscular, subcutaneous or in the bed of a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

T CELLS

Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for a lung tumor protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be isolated from bone marrow, peripheral blood, or a fraction of bone marrow or peripheral blood of a patient, using a commercially available cell separation system, such as the Isolex™ System, available from Nexell Therapeutics, Inc. (Irvine, CA; see also U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated humans, non-human mammals, cell lines or cultures.

T cells may be stimulated with a lung tumor polypeptide, polynucleotide encoding a lung tumor polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, a lung tumor polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for a lung tumor polypeptide if the T cells specifically proliferate, secrete cytokines or kill target cells coated with the polypeptide or expressing a gene encoding the polypeptide. T cell specificity may be evaluated using any of a variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such assays may be performed, for example, as described in Chen *et al.*, *Cancer Res.* 54:1065-1070, 1994. Alternatively, detection of the proliferation of T cells may be accomplished by a variety of known techniques. For example, T cell proliferation can be detected by measuring an increased rate of DNA synthesis (*e.g.*, by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with a lung tumor polypeptide (100 ng/ml - 100 µg/ml, preferably 200 ng/ml - 25 µg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells. Contact as described above for 2-3 hours should result in activation of the T cells, as measured using standard

cytokine assays in which a two fold increase in the level of cytokine release (*e.g.*, TNF or IFN- γ) is indicative of T cell activation (*see* Coligan *et al.*, Current Protocols in Immunology, vol. 1, Wiley Interscience (Greene 1998)). T cells that have been activated in response to a lung tumor polypeptide, polynucleotide or polypeptide-expressing APC may be CD4⁺ and/or CD8⁺. Lung tumor protein specific T cells may be expanded using standard techniques. Within preferred embodiments, the T cells are derived from a patient, a related donor or an unrelated donor, and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4⁺ or CD8⁺ T cells that proliferate in response to a lung tumor polypeptide, polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be accomplished in a variety of ways. For example, the T cells can be re-exposed to a lung tumor polypeptide, or a short peptide corresponding to an immunogenic portion of such a polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize a lung tumor polypeptide. Alternatively, one or more T cells that proliferate in the presence of a lung tumor protein can be expanded in number by cloning. Methods for cloning cells are well known in the art, and include limiting dilution.

PHARMACEUTICAL COMPOSITIONS

In additional embodiments, the present invention concerns formulation of one or more of the polynucleotide, polypeptide, T-cell and/or antibody compositions disclosed herein in pharmaceutically-acceptable solutions for administration to a cell or an animal, either alone, or in combination with one or more other modalities of therapy.

It will also be understood that, if desired, the nucleic acid segment, RNA, DNA or PNA compositions that express a polypeptide as disclosed herein may be administered in combination with other agents as well, such as, *e.g.*, other proteins or polypeptides or various pharmaceutically-active agents. In fact, there is virtually no limit to other components that may also be included, given that the additional agents do not cause a significant adverse effect upon contact with the target cells or host tissues. The compositions may thus be delivered along with various other agents as required in

the particular instance. Such compositions may be purified from host cells or other biological sources, or alternatively may be chemically synthesized as described herein. Likewise, such compositions may further comprise substituted or derivatized RNA or DNA compositions.

- 5 Formulation of pharmaceutically-acceptable excipients and carrier solutions is well-known to those of skill in the art, as is the development of suitable dosing and treatment regimens for using the particular compositions described herein in a variety of treatment regimens, including *e.g.*, oral, parenteral, intravenous, intranasal, and intramuscular administration and formulation.

10 1. ORAL DELIVERY

In certain applications, the pharmaceutical compositions disclosed herein may be delivered *via* oral administration to an animal. As such, these compositions may be formulated with an inert diluent or with an assimilable edible carrier, or they may be enclosed in hard- or soft-shell gelatin capsule, or they may be compressed into
15 tablets, or they may be incorporated directly with the food of the diet.

The active compounds may even be incorporated with excipients and used in the form of ingestible tablets, buccal tables, troches, capsules, elixirs, suspensions, syrups, wafers, and the like (Mathiowitz *et al.*, 1997; Hwang *et al.*, 1998; U. S. Patent 5,641,515; U. S. Patent 5,580,579 and U. S. Patent 5,792,451, each
20 specifically incorporated herein by reference in its entirety). The tablets, troches, pills, capsules and the like may also contain the following: a binder, as gum tragacanth, acacia, cornstarch, or gelatin; excipients, such as dicalcium phosphate; a disintegrating agent, such as corn starch, potato starch, alginic acid and the like; a lubricant, such as magnesium stearate; and a sweetening agent, such as sucrose, lactose or saccharin may
25 be added or a flavoring agent, such as peppermint, oil of wintergreen, or cherry flavoring. When the dosage unit form is a capsule, it may contain, in addition to materials of the above type, a liquid carrier. Various other materials may be present as coatings or to otherwise modify the physical form of the dosage unit. For instance, tablets, pills, or capsules may be coated with shellac, sugar, or both. A syrup of elixir
30 may contain the active compound sucrose as a sweetening agent methyl and

propylparabens as preservatives, a dye and flavoring, such as cherry or orange flavor. Of course, any material used in preparing any dosage unit form should be pharmaceutically pure and substantially non-toxic in the amounts employed. In addition, the active compounds may be incorporated into sustained-release preparation
5 and formulations.

Typically, these formulations may contain at least about 0.1% of the active compound or more, although the percentage of the active ingredient(s) may, of course, be varied and may conveniently be between about 1 or 2% and about 60% or 70% or more of the weight or volume of the total formulation. Naturally, the amount of
10 active compound(s) in each therapeutically useful composition may be prepared in such a way that a suitable dosage will be obtained in any given unit dose of the compound. Factors such as solubility, bioavailability, biological half-life, route of administration, product shelf life, as well as other pharmacological considerations will be contemplated by one skilled in the art of preparing such pharmaceutical formulations, and as such, a
15 variety of dosages and treatment regimens may be desirable.

For oral administration the compositions of the present invention may alternatively be incorporated with one or more excipients in the form of a mouthwash, dentifrice, buccal tablet, oral spray, or sublingual orally-administered formulation. For example, a mouthwash may be prepared incorporating the active ingredient in the
20 required amount in an appropriate solvent, such as a sodium borate solution (Dobell's Solution). Alternatively, the active ingredient may be incorporated into an oral solution such as one containing sodium borate, glycerin and potassium bicarbonate, or dispersed in a dentifrice, or added in a therapeutically-effective amount to a composition that may include water, binders, abrasives, flavoring agents, foaming agents, and humectants.
25 Alternatively the compositions may be fashioned into a tablet or solution form that may be placed under the tongue or otherwise dissolved in the mouth.

2. INJECTABLE DELIVERY

In certain circumstances it will be desirable to deliver the pharmaceutical compositions disclosed herein parenterally, intravenously, intramuscularly, or even
30 intraperitoneally as described in U. S. Patent 5,543,158; U. S. Patent 5,641,515 and U.

S. Patent 5,399,363 (each specifically incorporated herein by reference in its entirety). Solutions of the active compounds as free base or pharmacologically acceptable salts may be prepared in water suitably mixed with a surfactant, such as hydroxypropylcellulose. Dispersions may also be prepared in glycerol, liquid
5 polyethylene glycols, and mixtures thereof and in oils. Under ordinary conditions of storage and use, these preparations contain a preservative to prevent the growth of microorganisms.

The pharmaceutical forms suitable for injectable use include sterile aqueous solutions or dispersions and sterile powders for the extemporaneous
10 preparation of sterile injectable solutions or dispersions (U. S. Patent 5,466,468, specifically incorporated herein by reference in its entirety). In all cases the form must be sterile and must be fluid to the extent that easy syringability exists. It must be stable under the conditions of manufacture and storage and must be preserved against the contaminating action of microorganisms, such as bacteria and fungi. The carrier can be
15 a solvent or dispersion medium containing, for example, water, ethanol, polyol (*e.g.*, glycerol, propylene glycol, and liquid polyethylene glycol, and the like), suitable mixtures thereof, and/or vegetable oils. Proper fluidity may be maintained, for example, by the use of a coating, such as lecithin, by the maintenance of the required particle size in the case of dispersion and by the use of surfactants. The prevention of
20 the action of microorganisms can be facilitated by various antibacterial and antifungal agents, for example, parabens, chlorobutanol, phenol, sorbic acid, thimerosal, and the like. In many cases, it will be preferable to include isotonic agents, for example, sugars or sodium chloride. Prolonged absorption of the injectable compositions can be brought about by the use in the compositions of agents delaying absorption, for
25 example, aluminum monostearate and gelatin.

For parenteral administration in an aqueous solution, for example, the solution should be suitably buffered if necessary and the liquid diluent first rendered isotonic with sufficient saline or glucose. These particular aqueous solutions are especially suitable for intravenous, intramuscular, subcutaneous and intraperitoneal
30 administration. In this connection, a sterile aqueous medium that can be employed will be known to those of skill in the art in light of the present disclosure. For example, one

dosage may be dissolved in 1 ml of isotonic NaCl solution and either added to 1000 ml of hypodermoclysis fluid or injected at the proposed site of infusion, (see for example, "Remington's Pharmaceutical Sciences" 15th Edition, pages 1035-1038 and 1570-1580). Some variation in dosage will necessarily occur depending on the condition of the subject being treated. ~~The person responsible for administration will, in any event,~~

determine the appropriate dose for the individual subject. Moreover, for human administration, preparations should meet sterility, pyrogenicity, and the general safety and purity standards as required by FDA Office of Biologics standards.

Sterile injectable solutions are prepared by incorporating the active compounds in the required amount in the appropriate solvent with various of the other ingredients enumerated above, as required, followed by filtered sterilization. Generally, dispersions are prepared by incorporating the various sterilized active ingredients into a sterile vehicle which contains the basic dispersion medium and the required other ingredients from those enumerated above. In the case of sterile powders for the preparation of sterile injectable solutions, the preferred methods of preparation are vacuum-drying and freeze-drying techniques which yield a powder of the active ingredient plus any additional desired ingredient from a previously sterile-filtered solution thereof.

The compositions disclosed herein may be formulated in a neutral or salt form. Pharmaceutically-acceptable salts, include the acid addition salts (formed with the free amino groups of the protein) and which are formed with inorganic acids such as, for example, hydrochloric or phosphoric acids, or such organic acids as acetic, oxalic, tartaric, mandelic, and the like. Salts formed with the free carboxyl groups can also be derived from inorganic bases such as, for example, sodium, potassium, ammonium, calcium, or ferric hydroxides, and such organic bases as isopropylamine, trimethylamine, histidine, procaine and the like. Upon formulation, solutions will be administered in a manner compatible with the dosage formulation and in such amount as is therapeutically effective. The formulations are easily administered in a variety of dosage forms such as injectable solutions, drug-release capsules, and the like.

As used herein, "carrier" includes any and all solvents, dispersion media, vehicles, coatings, diluents, antibacterial and antifungal agents, isotonic and absorption

delaying agents, buffers, carrier solutions, suspensions, colloids, and the like. The use of such media and agents for pharmaceutical active substances is well known in the art. Except insofar as any conventional media or agent is incompatible with the active ingredient, its use in the therapeutic compositions is contemplated. Supplementary
5 active ingredients can also be incorporated into the compositions.

The phrase "pharmaceutically-acceptable" refers to molecular entities and compositions that do not produce an allergic or similar untoward reaction when administered to a human. The preparation of an aqueous composition that contains a protein as an active ingredient is well understood in the art. Typically, such
10 compositions are prepared as injectables, either as liquid solutions or suspensions; solid forms suitable for solution in, or suspension in, liquid prior to injection can also be prepared. The preparation can also be emulsified.

3. NASAL DELIVERY

In certain embodiments, the pharmaceutical compositions may be
15 delivered by intranasal sprays, inhalation, and/or other aerosol delivery vehicles. Methods for delivering genes, nucleic acids, and peptide compositions directly to the lungs *via* nasal aerosol sprays has been described *e.g.*, in U. S. Patent 5,756,353 and U. S. Patent 5,804,212 (each specifically incorporated herein by reference in its entirety). Likewise, the delivery of drugs using intranasal microparticle resins (Takenaga *et al.*,
20 1998) and lysophosphatidyl-glycerol compounds (U. S. Patent 5,725,871, specifically incorporated herein by reference in its entirety) are also well-known in the pharmaceutical arts. Likewise, transmucosal drug delivery in the form of a polytetrafluoroethylene support matrix is described in U. S. Patent 5,780,045 (specifically incorporated herein by reference in its entirety).

25 4. LIPOSOME-, NANOCAPSULE-, AND MICROPARTICLE-MEDIATED DELIVERY

In certain embodiments, the inventors contemplate the use of liposomes, nanocapsules, microparticles, microspheres, lipid particles, vesicles, and the like, for the introduction of the compositions of the present invention into suitable host cells. In particular, the compositions of the present invention may be formulated for delivery

either encapsulated in a lipid particle, a liposome, a vesicle, a nanosphere, or a nanoparticle or the like.

Such formulations may be preferred for the introduction of pharmaceutically-acceptable formulations of the nucleic acids or constructs disclosed herein. ~~The formation and use of liposomes is generally known to those of skill in the~~ art (see for example, Couvreur *et al.*, 1977; Couvreur, 1988; Lasic, 1998; which describes the use of liposomes and nanocapsules in the targeted antibiotic therapy for intracellular bacterial infections and diseases). Recently, liposomes were developed with improved serum stability and circulation half-times (Gabizon and Papahadjopoulos, 1988; Allen and Choun, 1987; U. S. Patent 5,741,516, specifically incorporated herein by reference in its entirety). Further, various methods of liposome and liposome like preparations as potential drug carriers have been reviewed (Takakura, 1998; Chandran *et al.*, 1997; Margalit, 1995; U. S. Patent 5,567,434; U. S. Patent 5,552,157; U. S. Patent 5,565,213; U. S. Patent 5,738,868 and U. S. Patent 5,795,587, each specifically incorporated herein by reference in its entirety).

Liposomes have been used successfully with a number of cell types that are normally resistant to transfection by other procedures including T cell suspensions, primary hepatocyte cultures and PC 12 cells (Renneisen *et al.*, 1990; Muller *et al.*, 1990). In addition, liposomes are free of the DNA length constraints that are typical of viral-based delivery systems. Liposomes have been used effectively to introduce genes, drugs (Heath and Martin, 1986; Heath *et al.*, 1986; Balazsovits *et al.*, 1989; Fresta and Puglisi, 1996), radiotherapeutic agents (Pikul *et al.*, 1987), enzymes (Imaizumi *et al.*, 1990a; Imaizumi *et al.*, 1990b), viruses (Faller and Baltimore, 1984), transcription factors and allosteric effectors (Nicolau and Gersonde, 1979) into a variety of cultured cell lines and animals. In addition, several successful clinical trials examining the effectiveness of liposome-mediated drug delivery have been completed (Lopez-Berestein *et al.*, 1985a; 1985b; Coune, 1988; Sculier *et al.*, 1988). Furthermore, several studies suggest that the use of liposomes is not associated with autoimmune responses, toxicity or gonadal localization after systemic delivery (Mori and Fukatsu, 1992).

Liposomes are formed from phospholipids that are dispersed in an aqueous medium and spontaneously form multilamellar concentric bilayer vesicles

(also termed multilamellar vesicles (MLVs). MLVs generally have diameters of from 25 nm to 4 μ m. Sonication of MLVs results in the formation of small unilamellar vesicles (SUVs) with diameters in the range of 200 to 500 Å, containing an aqueous solution in the core.

5 Liposomes bear resemblance to cellular membranes and are contemplated for use in connection with the present invention as carriers for the peptide compositions. They are widely suitable as both water- and lipid-soluble substances can be entrapped, *i.e.* in the aqueous spaces and within the bilayer itself, respectively. It is possible that the drug-bearing liposomes may even be employed for site-specific
10 delivery of active agents by selectively modifying the liposomal formulation.

 In addition to the teachings of Couvreur *et al.* (1977; 1988), the following information may be utilized in generating liposomal formulations. Phospholipids can form a variety of structures other than liposomes when dispersed in water, depending on the molar ratio of lipid to water. At low ratios the liposome is the
15 preferred structure. The physical characteristics of liposomes depend on pH, ionic strength and the presence of divalent cations. Liposomes can show low permeability to ionic and polar substances, but at elevated temperatures undergo a phase transition which markedly alters their permeability. The phase transition involves a change from a closely packed, ordered structure, known as the gel state, to a loosely packed, less-
20 ordered structure, known as the fluid state. This occurs at a characteristic phase-transition temperature and results in an increase in permeability to ions, sugars and drugs.

 In addition to temperature, exposure to proteins can alter the permeability of liposomes. Certain soluble proteins, such as cytochrome c, bind,
25 deform and penetrate the bilayer, thereby causing changes in permeability. Cholesterol inhibits this penetration of proteins, apparently by packing the phospholipids more tightly. It is contemplated that the most useful liposome formations for antibiotic and inhibitor delivery will contain cholesterol.

 The ability to trap solutes varies between different types of liposomes.
30 For example, MLVs are moderately efficient at trapping solutes, but SUVs are extremely inefficient. SUVs offer the advantage of homogeneity and reproducibility in

size distribution, however, and a compromise between size and trapping efficiency is offered by large unilamellar vesicles (LUVs). These are prepared by ether evaporation and are three to four times more efficient at solute entrapment than MLVs.

In addition to liposome characteristics, an important determinant in ~~5~~ ~~entrapping compounds is the physicochemical properties of the compound itself.~~ Polar compounds are trapped in the aqueous spaces and nonpolar compounds bind to the lipid bilayer of the vesicle. Polar compounds are released through permeation or when the bilayer is broken, but nonpolar compounds remain affiliated with the bilayer unless it is disrupted by temperature or exposure to lipoproteins. Both types show maximum
10 efflux rates at the phase transition temperature.

Liposomes interact with cells *via* four different mechanisms: endocytosis by phagocytic cells of the reticuloendothelial system such as macrophages and neutrophils; adsorption to the cell surface, either by nonspecific weak hydrophobic or electrostatic forces, or by specific interactions with cell-surface components; fusion
15 with the plasma cell membrane by insertion of the lipid bilayer of the liposome into the plasma membrane, with simultaneous release of liposomal contents into the cytoplasm; and by transfer of liposomal lipids to cellular or subcellular membranes, or vice versa, without any association of the liposome contents. It often is difficult to determine which mechanism is operative and more than one may operate at the same time.

20 The fate and disposition of intravenously injected liposomes depend on their physical properties, such as size, fluidity, and surface charge. They may persist in tissues for h or days, depending on their composition, and half lives in the blood range from min to several h. Larger liposomes, such as MLVs and LUVs, are taken up rapidly by phagocytic cells of the reticuloendothelial system, but physiology of the
25 circulatory system restrains the exit of such large species at most sites. They can exit only in places where large openings or pores exist in the capillary endothelium, such as the sinusoids of the liver or spleen. Thus, these organs are the predominate site of uptake. On the other hand, SUVs show a broader tissue distribution but still are sequestered highly in the liver and spleen. In general, this *in vivo* behavior limits the
30 potential targeting of liposomes to only those organs and tissues accessible to their large size. These include the blood, liver, spleen, bone marrow, and lymphoid organs.

Targeting is generally not a limitation in terms of the present invention. However, should specific targeting be desired, methods are available for this to be accomplished. Antibodies may be used to bind to the liposome surface and to direct the antibody and its drug contents to specific antigenic receptors located on a particular cell-type surface. Carbohydrate determinants (glycoprotein or glycolipid cell-surface components that play a role in cell-cell recognition, interaction and adhesion) may also be used as recognition sites as they have potential in directing liposomes to particular cell types. Mostly, it is contemplated that intravenous injection of liposomal preparations would be used, but other routes of administration are also conceivable.

Alternatively, the invention provides for pharmaceutically-acceptable nanocapsule formulations of the compositions of the present invention. Nanocapsules can generally entrap compounds in a stable and reproducible way (Henry-Michelland *et al.*, 1987; Quintanar-Guerrero *et al.*, 1998; Douglas *et al.*, 1987). To avoid side effects due to intracellular polymeric overloading, such ultrafine particles (sized around 0.1 μm) should be designed using polymers able to be degraded *in vivo*. Biodegradable polyalkyl-cyanoacrylate nanoparticles that meet these requirements are contemplated for use in the present invention. Such particles may be easily made, as described (Couvreux *et al.*, 1980; 1988; zur Muhlen *et al.*, 1998; Zambaux *et al.* 1998; Pinto-Alphandry *et al.*, 1995 and U. S. Patent 5,145,684, specifically incorporated herein by reference in its entirety).

IMMUNOGENIC COMPOSITIONS

In certain preferred embodiments of the present invention, immunogenic compositions, or vaccines, are provided. The immunogenic compositions will generally comprise one or more pharmaceutical compositions, such as those discussed above, in combination with an immunostimulant. An immunostimulant may be any substance that enhances or potentiates an immune response (antibody and/or cell-mediated) to an exogenous antigen. Examples of immunostimulants include adjuvants, biodegradable microspheres (*e.g.*, polylactic galactide) and liposomes (into which the compound is incorporated; *see e.g.*, Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine

Design (the subunit and adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and immunogenic compositions, or vaccines, within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of
5 ~~other tumor antigens may be present, either incorporated into a fusion polypeptide or as~~
a separate compound, within the composition.

Illustrative immunogenic compositions may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated *in situ*. As noted above, the DNA may be present within any of a variety of delivery
10 systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Numerous gene delivery techniques are well known in the art, such as those described by Rolland, *Crit. Rev. Therap. Drug Carrier Systems* 15:143-198, 1998, and references cited therein. Appropriate nucleic acid expression systems contain the necessary DNA sequences for expression in the
15 patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as *Bacillus-Calmette-Guerrin*) that expresses an immunogenic portion of the polypeptide on its cell surface or secretes such an epitope. In a preferred embodiment, the DNA may be introduced using a viral expression system (*e.g.*, vaccinia or other pox virus, retrovirus, or adenovirus), which
20 may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch *et al.*, *Proc. Natl. Acad. Sci. USA* 86:317-321, 1989; Flexner *et al.*, *Ann. N.Y. Acad. Sci.* 569:86-103, 1989; Flexner *et al.*, *Vaccine* 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651; EP 0,345,242;
25 WO 91/02805; Berkner, *Biotechniques* 6:616-627, 1988; Rosenfeld *et al.*, *Science* 252:431-434, 1991; Kolls *et al.*, *Proc. Natl. Acad. Sci. USA* 91:215-219, 1994; Kass-Eisler *et al.*, *Proc. Natl. Acad. Sci. USA* 90:11498-11502, 1993; Guzman *et al.*, *Circulation* 88:2838-2848, 1993; and Guzman *et al.*, *Cir. Res.* 73:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to
30 those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer *et al.*, *Science* 259:1745-1749, 1993 and reviewed by Cohen,

5 *Science* 259:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells. It will be apparent that an immunogenic composition may comprise both a polynucleotide and a polypeptide component. Such immunogenic compositions may provide for an enhanced immune response.

10 It will be apparent that an immunogenic composition may contain pharmaceutically acceptable salts of the polynucleotides and polypeptides provided herein. Such salts may be prepared from pharmaceutically acceptable non-toxic bases, including organic bases (*e.g.*, salts of primary, secondary and tertiary amines and basic amino acids) and inorganic bases (*e.g.*, sodium, potassium, lithium, ammonium, calcium and magnesium salts).

15 While any suitable carrier known to those of ordinary skill in the art may be employed in the immunogenic compositions of this invention, the type of carrier will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. For oral administration, any of the above carriers or a solid carrier, such as mannitol, 20 lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (*e.g.*, polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres are disclosed, for example, in U.S. Patent Nos. 4,897,268; 5,075,109; 5,928,647; 25 5,811,128; 5,820,883; 5,853,763; 5,814,344 and 5,942,252. One may also employ a carrier comprising the particulate-protein complexes described in U.S. Patent No. 5,928,647, which are capable of inducing a class I-restricted cytotoxic T lymphocyte responses in a host.

30 Such compositions may also comprise buffers (*e.g.*, neutral buffered saline or phosphate buffered saline), carbohydrates (*e.g.*, glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants,

bacteriostats, chelating agents such as EDTA or glutathione, adjuvants (*e.g.*, aluminum hydroxide), solutes that render the formulation isotonic, hypotonic or weakly hypertonic with the blood of a recipient, suspending agents, thickening agents and/or preservatives. Alternatively, compositions of the present invention may be formulated as a lyophilizate. ~~Compounds may also be encapsulated within liposomes using well known~~ technology.

Any of a variety of immunostimulants may be employed in the immunogenic compositions of this invention. For example, an adjuvant may be included. Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune responses, such as lipid A, *Bordetella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI); Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ); AS-2 (SmithKline Beecham, Philadelphia, PA); aluminum salts such as aluminum hydroxide gel (alum) or aluminum phosphate; salts of calcium, iron or zinc; an insoluble suspension of acylated tyrosine; acylated sugars; cationically or anionically derivatized polysaccharides; polyphosphazenes; biodegradable microspheres; monophosphoryl lipid A and quil A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the immunogenic compositions provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (*e.g.*, IFN- γ , TNF α , IL-2 and IL-12) tend to favor the induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (*e.g.*, IL-4, IL-5, IL-6 and IL-10) tend to favor the induction of humoral immune responses. Following application of an immunogenic composition as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses. Within a preferred embodiment, in which a response is predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, *Ann. Rev. Immunol.* 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt. MPL adjuvants are available from Corixa Corporation (Seattle, WA; *see* US Patent
5 Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). CpG-containing oligonucleotides (in which the CpG dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555, WO 99/33488 and U.S. Patent Nos. 6,008,200 and 5,856,462. Immunostimulatory DNA sequences are also described, for example, by
10 Sato *et al.*, *Science* 273:352, 1996. Another preferred adjuvant is a saponin, preferably QS21 (Aquila Biopharmaceuticals Inc., Framingham, MA), which may be used alone or in combination with other adjuvants. For example, an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic
15 composition where the QS21 is quenched with cholesterol, as described in WO 96/33739. Other preferred formulations comprise an oil-in-water emulsion and tocopherol. A particularly potent adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210.

Other preferred adjuvants include Montanide ISA 720 (Seppic, France),
20 SAF (Chiron, California, United States), ISCOMS (CSL), MF-59 (Chiron), the SBAS series of adjuvants (*e.g.*, SBAS-2 or SBAS-4, available from SmithKline Beecham, Rixensart, Belgium), Detox (Corixa, Hamilton, MT), RC-529 (Corixa, Hamilton, MT) and other aminoalkyl glucosaminide 4-phosphates (AGPs), such as those described in pending U.S. Patent Application Serial Nos. 08/853,826 and 09/074,720, the disclosures
25 of which are incorporated herein by reference in their entireties.

Any immunogenic composition provided herein may be prepared using well known methods that result in a combination of antigen, immune response enhancer and a suitable carrier or excipient. The compositions described herein may be administered as part of a sustained release formulation (*i.e.*, a formulation such as a
30 capsule, sponge or gel (composed of polysaccharides, for example) that effects a slow release of compound following administration). Such formulations may generally be

prepared using well known technology (*see, e.g., Coombes et al., Vaccine 14:1429-1438, 1996*) and administered by, for example, oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix and/or contained within a reservoir surrounded by a rate-controlling membrane.

Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively constant level of active component release. Such carriers include microparticles of poly(lactide-co-glycolide), polyacrylate, latex, starch, cellulose, dextran and the like. Other delayed-release carriers include supramolecular biovectors, which comprise a non-liquid hydrophilic core (*e.g., a cross-linked polysaccharide or oligosaccharide*) and, optionally, an external layer comprising an amphiphilic compound, such as a phospholipid (*see e.g., U.S. Patent No. 5,151,254 and PCT applications WO 94/20078, WO/94/23701 and WO 96/06638*). The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within pharmaceutical compositions and immunogenic compositions to facilitate production of an antigen-specific immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages, B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the antigen, to improve activation and/or maintenance of the T cell response, to have anti-tumor effects *per se* and/or to be immunologically compatible with the receiver (*i.e., matched HLA haplotype*). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

Certain preferred embodiments of the present invention use dendritic cells or progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent APCs (Banchereau and Steinman, *Nature 392:245-251, 1998*) and have been shown to

be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (see Timmerman and Levy, *Ann. Rev. Med.* 50:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*, with marked cytoplasmic processes (dendrites) visible *in vitro*), their ability to take up, process and present antigens with high efficiency and their ability to activate naïve T cell responses. Dendritic cells may, of course, be engineered to express specific cell-surface receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine, or immunogenic composition (see Zitvogel *et al.*, *Nature Med.* 4:594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNF α to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNF α , CD40 ligand, LPS, flt3 ligand and/or other compound(s) that induce differentiation, maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized phenotypes. However, this nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fc γ receptor and mannose receptor. The mature phenotype is typically characterized by a lower expression of these markers, but a high expression of cell surface molecules responsible for T cell activation such as class I and class II MHC, adhesion molecules (*e.g.*, CD54 and CD11) and costimulatory molecules (*e.g.*, CD40, CD80, CD86 and 4-1BB).

APCs may generally be transfected with a polynucleotide encoding a lung tumor protein (or portion or other variant thereof) such that the lung tumor polypeptide, or an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place *ex vivo*, and a composition comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection that occurs *in vivo*. *In vivo* and *ex vivo* transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi *et al.*, *Immunology and cell Biology* 75:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells with the lung tumor polypeptide, DNA (naked or within a plasmid vector) or RNA; or with antigen-expressing recombinant bacterium or viruses (*e.g.*, vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (*e.g.*, a carrier molecule). Alternatively, a dendritic cell may be pulsed with a non-conjugated immunological partner, separately or in the presence of the polypeptide.

Immunogenic compositions and pharmaceutical compositions may be presented in unit-dose or multi-dose containers, such as sealed ampoules or vials. Such containers are preferably hermetically sealed to preserve sterility of the formulation until use. In general, formulations may be stored as suspensions, solutions or emulsions in oily or aqueous vehicles. Alternatively, an immunogenic or pharmaceutical composition may be stored in a freeze-dried condition requiring only the addition of a sterile liquid carrier immediately prior to use.

25 CANCER THERAPY

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as lung cancer. Within such methods, compositions are typically administered to a patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions

and immunogenic compositions may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. A cancer may be diagnosed using criteria generally accepted in the art, including the presence of a malignant tumor. Pharmaceutical compositions and immunogenic compositions may be administered
5 either prior to or following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs. Administration may be by any suitable method, including administration by intravenous, intraperitoneal, intramuscular, subcutaneous, intranasal, intradermal, anal, vaginal, topical and oral routes.

10 Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous host immune system to react against tumors with the administration of immune response-modifying agents (such as polypeptides and polynucleotides as provided herein).

15 Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not necessarily depend on an intact host immune system. Examples of effector cells include T cells as discussed above, T
20 lymphocytes (such as CD8⁺ cytotoxic T lymphocytes and CD4⁺ T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer cells), B cells and antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody
25 receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The polypeptides provided herein may also be used to generate antibodies or anti-idiotypic antibodies (as described above and in U.S. Patent No. 4,918,164) for passive immunotherapy.

30 Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth *in vitro*, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with

retention of antigen recognition *in vivo* are well known in the art. Such *in vitro* culture conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage, monocyte, fibroblast and/or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example, antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term *in vivo*. Studies have shown that cultured effector cells can be induced to grow *in vivo* and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (*see*, for example, Cheever *et al.*, *Immunological Reviews* 157:177, 1997).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into antigen presenting cells taken from a patient and clonally propagated *ex vivo* for transplant back into the same patient. Transfected cells may be reintroduced into the patient using any means known in the art, preferably in sterile form by intravenous, intracavitary, intraperitoneal or intratumor administration.

Routes and frequency of administration of the therapeutic compositions described herein, as well as dosage, will vary from individual to individual, and may be readily established using standard techniques. In general, the pharmaceutical compositions and immunogenic compositions may be administered by injection (*e.g.*, intracutaneous, intramuscular, intravenous or subcutaneous), intranasally (*e.g.*, by aspiration) or orally. Preferably, between 1 and 10 doses may be administered over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described above, is capable of promoting an anti-tumor immune response, and is at least 10-50% above the basal (*i.e.*, untreated) level. Such response

can be monitored by measuring the anti-tumor antibodies in a patient or by vaccine-dependent generation of cytolytic effector cells capable of killing the patient's tumor cells *in vitro*. Such vaccines, or immunogenic compositions, should also be capable of causing an immune response that leads to an improved clinical outcome (e.g., more frequent remissions, complete or partial or longer disease-free survival) in vaccinated patients as compared to non-vaccinated patients. In general, for compositions comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 25 μ g to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically range from about 0.1 mL to about 5 mL.

10 In general, an appropriate dosage and treatment regimen provides the active compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (e.g., more frequent remissions, complete or partial, or longer disease-free survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to a lung tumor protein generally correlate with an improved clinical outcome. Such immune responses may generally be evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

CANCER DETECTION AND DIAGNOSIS

20 In general, a cancer may be detected in a patient based on the presence of one or more lung tumor proteins and/or polynucleotides encoding such proteins in a biological sample (for example, blood, sera, sputum urine and/or tumor biopsies) obtained from the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as lung cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of antigen that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA encoding a tumor protein, which is also indicative of the presence or absence of a cancer. In general, a lung tumor sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

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There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. See, e.g., Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by

5 ~~(a) contacting a biological sample obtained from a patient with a binding agent; (b)~~
detecting in the sample a level of polypeptide that binds to the binding agent; and (c)
comparing the level of polypeptide with a predetermined cut-off value.

In a preferred embodiment, the assay involves the use of binding agent immobilized on a solid support to bind to and remove the polypeptide from the

10 remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G,

15 protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the binding agent is indicative of the reactivity of the sample with the immobilized binding

20 agent. Suitable polypeptides for use within such assays include full length lung tumor proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill in the art to which the tumor protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane.

25 Alternatively, the support may be a bead or disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S. Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply

30 described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption,

and covalent attachment (which may be a direct linkage between the agent and functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about 10 µg, and preferably about 100 ng to about 1 µg, is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (*see, e.g.,* Pierce Immunotechnology Catalog and Handbook, 1991, at A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody. Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20™ (Sigma Chemical Co., St. Louis, MO). The

immobilized antibody is then incubated with the sample, and polypeptide is allowed to bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (*i.e.*, incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with lung cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve equilibrium may be readily determined by assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support with an appropriate buffer, such as PBS containing 0.1% Tween 20™. The second antibody, which contains a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibody-polypeptide complex for an amount of time sufficient to detect the bound polypeptide. An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of time. Unbound detection reagent is then removed and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of the reaction products.

To determine the presence or absence of a cancer, such as lung cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a signal that corresponds to a predetermined cut-off value. In

one preferred embodiment, the cut-off value for the detection of a cancer is the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is determined using a Receiver Operator Curve, according to the method of Sackett *et al.*, *Clinical Epidemiology: A Basic Science for Clinical Medicine*, Little Brown and Co., 1985, p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot of pairs of true positive rates (*i.e.*, sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest to the upper left-hand corner (*i.e.*, the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

In a related embodiment, the assay is performed in a flow-through or strip test format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent. Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized

on the membrane is selected to generate a visually discernible pattern when the biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1 µg, and more preferably from about 50 ng to about 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course, numerous other assay protocols exist that are suitable for use with the tumor proteins or binding agents of the present invention. The above descriptions are intended to be exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use lung tumor polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such lung tumor protein specific antibodies may correlate with the presence of a cancer.

A cancer may also, or alternatively, be detected based on the presence of T cells that specifically react with a lung tumor protein in a biological sample. Within certain methods, a biological sample comprising CD4⁺ and/or CD8⁺ T cells isolated from a patient is incubated with a lung tumor polypeptide, a polynucleotide encoding such a polypeptide and/or an APC that expresses at least an immunogenic portion of such a polypeptide, and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may be incubated *in vitro* for 2-9 days (typically 4 days) at 37°C with polypeptide (e.g., 5 - 25 µg/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of lung tumor polypeptide to serve as a control. For CD4⁺ T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8⁺ T cells, activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater and/or a level of cytolytic activity that is at

least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.

As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding a lung tumor protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to amplify a portion of a lung tumor cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is specific for (*i.e.*, hybridizes to) a polynucleotide encoding the lung tumor protein. The amplified cDNA is then separated and detected using techniques well known in the art, such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding a lung tumor protein may be used in a hybridization assay to detect the presence of polynucleotide encoding the tumor protein in a biological sample.

To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%, preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding a lung tumor protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in length. Preferably, oligonucleotide primers and/or probes hybridize to a polynucleotide encoding a polypeptide described herein under moderately stringent conditions, as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous nucleotides, more preferably at least 15 contiguous nucleotides, of a DNA molecule having a sequence recited in SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 or 810-826. Techniques for both PCR based assays and hybridization assays

are well known in the art (*see*, for example, Mullis *et al.*, *Cold Spring Harbor Symp. Quant. Biol.*, 51:263, 1987; Erlich ed., *PCR Technology*, Stockton Press, NY, 1989).

One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample, such as biopsy tissue, and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered positive.

In another embodiment, the compositions described herein may be used as markers for the progression of cancer. In this embodiment, assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) or polynucleotide(s) evaluated. For example, the assays may be performed every 24-72 hours for a period of 6 months to 1 year, and thereafter performed as needed. In general, a cancer is progressing in those patients in whom the level of polypeptide or polynucleotide detected increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide or polynucleotide either remains constant or decreases with time.

Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

As noted above, to improve sensitivity, multiple lung tumor protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of tumor

protein markers may be based on routine experiments to determine combinations that results in optimal sensitivity. In addition, or alternatively, assays for tumor proteins provided herein may be combined with assays for other known tumor antigens.

DIAGNOSTIC KITS

5 The present invention further provides kits for use within any of the above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to a lung
10 tumor protein. Such antibodies or fragments may be provided attached to a support material, as described above. One or more additional containers may enclose elements, such as reagents or buffers, to be used in the assay. Such kits may also, or alternatively, contain a detection reagent as described above that contains a reporter group suitable for direct or indirect detection of antibody binding.

15 Alternatively, a kit may be designed to detect the level of mRNA encoding a lung tumor protein in a biological sample. Such kits generally comprise at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding a lung tumor protein. Such an oligonucleotide may be used, for example, within a PCR or hybridization assay. Additional components that may be
20 present within such kits include a second oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a polynucleotide encoding a lung tumor protein.

The following Examples are offered by way of illustration and not by way of limitation.

EXAMPLE 1IDENTIFICATION AND CHARACTERIZATION OF LUNG
TUMOR PROTEIN cDNAS

~~This Example illustrates the identification of cDNA molecules encoding~~
lung tumor proteins.

A. Isolation of cDNA Sequences from Lung Adenocarcinoma Libraries
using Conventional cDNA Library Subtraction

A human lung adenocarcinoma cDNA expression library was
10 constructed from poly A⁺ RNA from patient tissues (# 40031486) using a Superscript
Plasmid System for cDNA Synthesis and Plasmid Cloning kit (BRL Life Technologies,
Gaithersburg, MD) following the manufacturer's protocol. Specifically, lung carcinoma
tissues were homogenized with polytron (Kinematica, Switzerland) and total RNA was
extracted using Trizol reagent (BRL Life Technologies) as directed by the
15 manufacturer. The poly A⁺ RNA was then purified using an oligo dT cellulose column
as described in Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold
Spring Harbor Laboratories, Cold Spring Harbor, NY, 1989. First-strand cDNA was
synthesized using the NotI/Oligo-dT18 primer. Double-stranded cDNA was
synthesized, ligated with BstXI/EcoRI adaptors (Invitrogen, San Diego, CA) and
20 digested with NotI. Following size fractionation with cDNA size fractionation columns
(BRL Life Technologies), the cDNA was ligated into the BstXI/NotI site of pcDNA3.1
(Invitrogen) and transformed into ElectroMax *E. coli* DH10B cells (BRL Life
Technologies) by electroporation. A total of 3 x 10⁶ independent colonies were
generated.

25 Using the same procedure, a normal human cDNA expression library
was prepared from a panel of normal tissue specimens, including lung, liver, pancreas,
skin, kidney, brain and resting PBMC.

cDNA library subtraction was performed using the above lung
adenocarcinoma and normal tissue cDNA libraries, as described by Hara *et al.* (*Blood*,
30 84:189-199, 1994) with some modifications. Specifically, a lung adenocarcinoma-

specific subtracted cDNA library was generated as follows. The normal tissue cDNA library (80 µg) was digested with BamHI and XhoI, followed by a filling-in reaction with DNA polymerase Klenow fragment. After phenol-chloroform extraction and ethanol precipitation, the DNA was dissolved in 133 µl of H₂O, heat-denatured and
5 mixed with 133 µl (133 µg) of Photoprobe biotin (Vector Laboratories, Burlingame, CA). As recommended by the manufacturer, the resulting mixture was irradiated with a 270 W sunlamp on ice for 20 minutes. Additional Photoprobe biotin (67 µl) was added and the biotinylation reaction was repeated. After extraction with butanol five times, the DNA was ethanol-precipitated and dissolved in 23 µl H₂O. The resulting DNA,
10 plus other highly redundant cDNA clones that were frequently recovered in previous lung subtractions formed the driver DNA.

To form the tracer DNA, 10 µg lung adenocarcinoma cDNA library was digested with NotI and SpeI, phenol chloroform extracted and passed through Chroma spin-400 columns (Clontech, Palo Alto, CA). Typically, 5 µg of cDNA was recovered
15 after the sizing column. Following ethanol precipitation, the tracer DNA was dissolved in 5 µl H₂O. Tracer DNA was mixed with 15 µl driver DNA and 20 µl of 2 x hybridization buffer (1.5 M NaCl/10 mM EDTA/50 mM HEPES pH 7.5/0.2% sodium dodecyl sulfate), overlaid with mineral oil, and heat-denatured completely. The sample was immediately transferred into a 68 °C water bath and incubated for 20 hours (long
20 hybridization [LH]). The reaction mixture was then subjected to a streptavidin treatment followed by phenol/chloroform extraction. This process was repeated three more times. Subtracted DNA was precipitated, dissolved in 12 µl H₂O, mixed with 8 µl driver DNA and 20 µl of 2 x hybridization buffer, and subjected to a hybridization at 68 °C for 2 hours (short hybridization [SH]). After removal of biotinylated double-
25 stranded DNA, subtracted cDNA was ligated into NotI/SpeI site of chloramphenicol resistant pBCSK⁺ (Stratagene, La Jolla, CA) and transformed into ElectroMax *E. coli* DH10B cells by electroporation to generate a lung adenocarcinoma specific subtracted cDNA library, referred to as LAT-S1. Similarly, LAT-S2 was generated by including
23 genes that were over-expressed in the tracer as additional drivers.

30 A second human lung adenocarcinoma cDNA expression library was constructed using adenocarcinoma tissue from a second patient (# 86-66) and used to

prepare a second lung adenocarcinoma-specific subtracted cDNA library (referred to as LAT2-S2), as described above, using the same panel of normal tissues and the additional genes over-expressed in LAT-S1.

A third human metastatic lung adenocarcinoma library was constructed
5 ~~from a pool of two lung pleural effusions with lung and gastric adenocarcinoma origins~~
The subtracted cDNA library, Mets-sub2 was generated as described above using the same panel of normal tissues. However, the Mets-sub3 subtracted library was constructed by including 51 additional genes as drivers. These 51 genes were recovered in Mets-sub2, representing over-expressed housekeeping genes in the testers. As a
10 result, Mets-sub3 is more complexed and normalized.

A total of 16 cDNA fragments isolated from LAT-S1, 585 cDNA fragments isolated from LAT-S2, 568 cDNA clones from LAT2-S2, 15 cDNA clones from Mets-sub2 and 343 cDNA clones from Mets-sub3, described above, were colony PCR amplified and their mRNA expression levels in lung tumor, normal lung, and
15 various other normal and tumor tissues were determined using microarray technology (Incyte, Palo Alto, CA). Briefly, the PCR amplification products were dotted onto slides in an array format, with each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested, reverse transcribed, and fluorescent-labeled cDNA probes were generated. The microarrays were probed with
20 the labeled cDNA probes, the slides scanned and fluorescence intensity was measured. This intensity correlates with the hybridization intensity. Seventy-three non-redundant cDNA clones, of which 42 were found to be unique, showed over-expression in lung tumors, with expression in normal tissues tested (lung, skin, lymph node, colon, liver, pancreas, breast, heart, bone marrow, large intestine, kidney, stomach, brain, small
25 intestine, bladder and salivary gland) being either undetectable, or at significantly lower levels compared to lung adenocarcinoma tumors. These clones were further characterized by DNA sequencing with a Perkin Elmer/Applied Biosystems Division Automated Sequencer Model 373A and/or Model 377 (Foster City, CA).

The sequences were compared to known sequences in the gene bank
30 using the EMBL GenBank databases (release 96). No significant homologies were found to the sequence provided in SEQ ID NO: 67, with no apparent homology to

previously identified expressed sequence tags (ESTs). The sequences of SEQ ID NO: 60, 62, 65, 66, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97 and 98 were found to show some homology to previously identified expressed sequence tags (ESTs). The cDNA sequences of SEQ ID NO: 59, 61, 63, 64, 67, 68, 72, 73, 75, 77, 78, 81-83, 85, 87, 88, 93, 94, 96, 99 and 100 showed homology to previously identified genes. The full-length cDNA sequences for the clones of SEQ ID NO: 96 and 100 are provided in SEQ ID NO: 316 and 318, respectively. The amino acid sequences for the clones of SEQ ID NO: 59, 61, 63, 64, 68, 73, 82, 83, 94, 96 and 100 are provided in SEQ ID NO: 331, 328, 329, 332, 327, 333, 330, 326, 325, 324 and 335, respectively. A predicted amino acid sequence encoded by the sequence of SEQ ID NO: 69 (referred to as L552S) is provided in SEQ ID NO: 786.

Further studies led to the isolation of an extended cDNA sequence, and open reading frame, for L552S (SEQ ID NO: 790). The predicted amino acid sequence encoded by the cDNA sequence of SEQ ID NO: 790 is provided in SEQ ID NO: 791. The determined cDNA sequence of an isoform of L552S is provided in SEQ ID NO: 792, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 793. Subsequent studies led to the isolation of the full-length cDNA sequence of L552S (SEQ ID NO: 808). The corresponding amino acid sequence is provided in SEQ ID NO: 809. No homologies were found to the protein sequence of L552S. However, nucleotides 533-769 of the full-length cDNA sequence were found to show homology to a previously identified DNA sequence.

Full-length cloning efforts on L552S led to the isolation of three additional cDNA sequences (SEQ ID NO: 810-812) from a metastatic lung adenocarcinoma library. The sequence of SEQ ID NO: 810 was found to show some homology to previously identified human DNA sequences. The sequence of SEQ ID NO: 811 was found to show some homology to a previously identified DNA sequence. The sequence of SEQ ID NO: 812 was found to show some homology to previously identified ESTs.

The gene of SEQ ID NO: 84 (referred to as L551S) was determined by real-time RT-PCR analysis to be over-expressed in 2/9 primary adenocarcinomas and to be expressed at lower levels in 2/2 metastatic adenocarcinomas and 1/2 squamous cell

carcinomas. No expression was observed in normal tissues, with the exception of very low expression in normal stomach. Further studies on L551S led to the isolation of the 5' and 3' cDNA consensus sequences provided in SEQ ID NO: 801 and 802, respectively. The L551S 5' sequence was found to show some homology to the previously identified gene ~~STY8 (cDNA sequence provided in SEQ ID NO: 803;~~ corresponding amino acid sequence provided in SEQ ID NO: 805), which is a mitogen activated protein kinase phosphatase. However, no significant homologies were found to the 3' sequence of L551S. Subsequently, an extended cDNA sequence for L551S was isolated (SEQ ID NO: 804). The corresponding amino acid sequence is provided in SEQ ID NO: 806. Further studies led to the isolation of two independent full-length clones for L551S (referred to as 54298 and 54305). These two clones have five nucleotide differences compared to the STY8 DNA sequence. Two of these differences are single nucleotide polymorphisms which do not effect the encoded amino acid sequences. The other three nucleotide differences are consistent between the two L551S clones but lead to encoded amino acid sequences that are different from the STY8 protein sequence. The determined cDNA sequences for the L551S full-length clones 54305 and 54298 are provided in SEQ ID NO: 825 and 826, respectively, with the amino acid sequence for L551S being provided in SEQ ID NO: 827.

B. Isolation of cDNA Sequences from Lung Adenocarcinoma Libraries
using PCR-Based cDNA Library Subtraction

cDNA clones from a PCR-based subtraction library, containing cDNA from a pool of two human lung primary adenocarcinomas subtracted against a pool of nine normal human tissue cDNAs including skin, colon, lung, esophagus, brain, kidney, spleen, pancreas and liver, (Clontech, Palo Alto, CA) were derived and submitted to a first round of PCR amplification. This library (referred to as ALT-1) was subjected to a second round of PCR amplification, following the manufacturer's protocol. The expression levels of 760 cDNA clones in lung tumor, normal lung, and various other normal and tumor tissues, were examined using microarray technology as described above. A total of 118 clones, of which 55 were unique, were found to be over-expressed in lung tumor tissue, with expression in normal tissues tested (lung, skin,

lymph node, colon, liver, pancreas, breast, heart, bone marrow, large intestine, kidney, stomach, brain, small intestine, bladder and salivary gland) being either undetectable, or at significantly lower levels. The sequences were compared to known sequences in the gene bank using the EMBL and GenBank databases (release 96). No significant
5 homologies (including ESTs) were found to the sequence provided in SEQ ID NO: 44. The sequences of SEQ ID NO: 1, 11, 13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43, 45, 46, 51 and 57 were found to show some homology to previously identified expressed sequence tags (ESTs). The cDNA sequences of SEQ ID NO: 2-10, 12, 14, 16-19, 21, 22, 28, 31, 32, 35-38, 40, 42, 44, 47-50, 52-56 and 58 showed homology to previously
10 identified genes. The full-length cDNA sequences for the clones of SEQ ID NO: 18, 22, 31, 35, 36 and 42 are provided in SEQ ID NO: 320, 319, 323, 321, 317, 321 and 322, respectively, with the corresponding amino acid sequences being provided in SEQ ID NO: 337, 336, 340, 338, 334, and 339, respectively.

Further studies led to the isolation of an extended cDNA sequence for
15 the clone of SEQ ID NO: 33 (referred to as L801P). This extended cDNA sequence (provided in SEQ ID NO: 796), was found to contain three potential open reading frames (ORFs). The predicted amino acid sequences encoded by these three ORFs are provided in SEQ ID NO: 797-799, respectively.

In subsequent studies, a full-length cDNA sequence for the clone of SEQ
20 ID NO: 44 (referred to as L844P) was isolated (provided in SEQ ID NO: 800). Comparison of this sequence with those in the public databases revealed that the 470 bases at the 5' end of the sequence show homology to the known gene dihydrodiol dehydrogenase, thus indicating that L844P is a novel transcript of the dihydrodiol dehydrogenase family having 2007 base pairs of previously unidentified 3'
25 untranslated region.

The predicted amino acid sequence encoded by the sequence of SEQ ID NO: 46 (referred to as L840P) is provided in SEQ ID NO: 787. An extended cDNA sequence for L840P, which was determined to include an open reading frame, is provided in SEQ ID NO: 794. The predicted amino acid sequence encoded by the
30 cDNA sequence of SEQ ID NO: 794 is provided in SEQ ID NO: 795. The full-length cDNA sequence for the clone of SEQ ID NO: 54 (referred to as L548S) is provided in

SEQ ID NO: 788, with the corresponding amino acid sequence being provided in SEQ ID NO: 789.

Northern blot analyses of the genes of SEQ ID NO: 25 and 46 (referred to as L839P and L840P, respectively) were remarkably similar. Both genes were ~~expressed in 1/2 lung adenocarcinomas as two bands of 3.6 kb and 1.6 kb. No~~ expression of L839P was observed in normal lung or trachea. No expression of L840P was observed in normal bone marrow, resting or activated PBMC, esophagus, or normal lung. Given the similar expression patterns, L839P and L840P may be derived from the same gene.

Further studies on L773P (SEQ ID NO: 58) resulted in the isolation of the extended consensus cDNA sequence provided in SEQ ID NO: 807.

Additional lung adenocarcinoma cDNA clones were isolated as follows. A cDNA library was prepared from a pool of two lung adenocarcinomas and subtracted against cDNA from a panel of normal tissues including lung, brain, liver, kidney, pancreas, skin, heart and spleen. The subtraction was performed using a PCR-based protocol (Clontech), which was modified to generate larger fragments. Within this protocol, tester and driver double stranded cDNA were separately digested with five restriction enzymes that recognize six-nucleotide restriction sites (MluI, MscI, PvuII, Sall and StuI). This digestion resulted in an average cDNA size of 600 bp, rather than the average size of 300 bp that results from digestion with RsaI according to the Clontech protocol. The ends of the restriction digested tester cDNA were filled in to generate blunt ends for adapter ligation. This modification did not affect the subtraction efficiency. Two tester populations were then created with different adapters, and the driver library remained without adapters. The tester and driver libraries were then hybridized using excess driver cDNA. In the first hybridization step, driver was separately hybridized with each of the two tester cDNA populations. This resulted in populations of (a) unhybridized tester cDNAs, (b) tester cDNAs hybridized to other tester cDNAs, (c) tester cDNAs hybridized to driver cDNAs and (d) unhybridized driver cDNAs. The two separate hybridization reactions were then combined, and rehybridized in the presence of additional denatured driver cDNA. Following this second hybridization, in addition to populations (a) through (d), a fifth population (e)

was generated in which tester cDNA with one adapter hybridized to tester cDNA with the second adapter. Accordingly, the second hybridization step resulted in enrichment of differentially expressed sequences which could be used as templates for PCR amplification with adaptor-specific primers.

5 The ends were then filled in, and PCR amplification was performed using adaptor-specific primers. Only population (e), which contained tester cDNA that did not hybridize to driver cDNA, was amplified exponentially. A second PCR amplification step was then performed, to reduce background and further enrich differentially expressed sequences.

10 Fifty-seven cDNA clones were isolated from the subtracted library (referred to as LAP1) and sequenced. The determined cDNA sequences for 16 of these clones are provided in SEQ ID NO: 101-116. The sequences of SEQ ID NO: 101 and 114 showed no significant homologies to previously identified sequences. The sequences of SEQ ID NO: 102-109 and 112 showed some similarity to previously
15 identified sequences, while the sequences of SEQ ID NO: 113, 115 and 116 showed some similarity to previously isolated ESTs.

C. Isolation of cDNA Sequences from Small Cell Lung Carcinoma Libraries using PCR-Based cDNA Library Subtraction

A subtracted cDNA library for small cell lung carcinoma (referred to as
20 SCL1) was prepared using essentially the modified PCR-based subtraction process described above. cDNA from small cell lung carcinoma was subtracted against cDNA from a panel of normal tissues, including normal lung, brain, kidney, liver, pancreas, skin, heart, lymph node and spleen. Both tester and driver poly A+ RNA were initially amplified using SMART PCR cDNA synthesis kit (Clontech, Palo Alto, CA). The
25 tester and driver double stranded cDNA were separately digested with five restriction enzymes (DraI, MscI, PvuII, SmaI, and StuI). These restriction enzymes generated blunt end cuts and the digestion resulted in an average insert size of 600 bp. Digestion with this set of restriction enzymes eliminates the step required to generate blunt ends by filling in of the cDNA ends. These modifications did not affect subtraction
30 efficiency.

Eighty-five clones were isolated and sequenced. The determined cDNA sequences for 31 of these clones are provided in SEQ ID NO: 117-147. The sequences of SEQ ID NO: 122, 124, 126, 127, 130, 131, 133, 136, 139 and 147 showed no significant homologies to previously identified sequences. The sequences of SEQ ID NO: 120, 129, 135, 137, 140, 142, 144 and 145 showed some similarity to previously identified gene sequences, while the sequences of SEQ ID NO: 114, 118, 119, 121, 123, 125, 128, 132, 134, 138, 141, 143 and 147 showed some similarity to previously isolated ESTs.

In further studies, three additional cDNA libraries were generated from poly A+ RNA from a single small cell lung carcinoma sample subtracted against a pool of poly A+ RNA from nine normal tissues (lung, brain, kidney, liver, pancreas, skin, heart pituitary gland and spleen). For the first library (referred to as SCL2), the subtraction was carried out essentially as described above for the LAP1 library, with the exception that the tester and driver were digested with PvuII, StuI, MscI and DraI. The ratio of tester and driver cDNA used was as recommended by Clontech. For the second library (referred to as SCL3), subtraction was performed essentially as for SCL2 except that cDNA for highly redundant clones identified from the SCL2 library was included in the driver cDNA. Construction of the SCL4 library was performed essentially as described for the SCL3 library except that a higher ratio of driver to tester was employed.

Each library was characterized by DNA sequencing and database analyses. The determined cDNA sequence for 35 clones isolated from the SCL2 library are provided in SEQ ID NO: 245-279, with the determined cDNA sequences for 21 clones isolated from the SCL3 library and for 15 clones isolated from the SCL4 library being provided in SEQ ID NO: 280-300 and 301-315, respectively. The sequences of SEQ ID NO: 246, 254, 261, 262, 304, 309 and 311 showed no significant homologies to previously identified sequences. The sequence of SEQ ID NO: 245, 248, 255, 266, 270, 275, 280, 282, 283, 288-290, 292, 295, 301 and 303 showed some homology to previously isolated ESTs, while the sequences of SEQ ID NO: 247, 249-253, 256-260, 263-265, 267-269, 271-274, 276-279, 281, 284-287, 291, 293, 294, 296-300, 302, 305-308, 310 and 312-315 showed some homology to previously identified gene sequences.

D. Isolation of cDNA Sequences from a Neuroendocrine Library using
PCR-Based cDNA Library Subtraction

Using the modified PCR-based subtraction process, essentially as described above for the LAP1 subtracted library, a subtracted cDNA library (referred to as MLN1) was derived from a lung neuroendocrine carcinoma that had metastasized to the subcarinal lymph node, by subtraction with a panel of nine normal tissues, including normal lung, brain, kidney, liver, pancreas, skin, heart, lymph node and spleen.

Ninety-one individual clones were isolated and sequenced. The determined cDNA sequences for 58 of these clones are provided in SEQ ID NO: 147-222. The sequences of SEQ ID NO: 150, 151, 154, 157, 158, 159, 160, 163, 174, 175, 178, 186-190, 192, 193, 195-200, 208-210, 212-215 and 220 showed no significant homologies to previously identified sequences. The sequences of SEQ ID NO: 152, 155, 156, 161, 165, 166, 176, 179, 182, 184, 185, 191, 194, 221 and 222 showed some similarity to previously identified gene sequences, while the sequences of SEQ ID NO: 148, 149, 153, 164, 167-173, 177, 180, 181, 183, 201-207, 211 and 216-219 showed some similarity to previously isolated ESTs.

The determined cDNA sequences of an additional 442 clones isolated from the MLN1 library are provided in SEQ ID NO: 341-782.

E. Isolation of cDNA Sequences from a Squamous Cell Lung Carcinoma
Library using PCR-Based cDNA Library Subtraction

A subtracted cDNA library for squamous cell lung carcinoma (referred to as SQL1) was prepared, essentially using the modified PCR-based subtraction process described above, except the tester and driver double stranded cDNA were separately digested with four restriction enzymes (DraI, MscI, PvuII and StuI) cDNA from a pool of two squamous cell lung carcinomas was subtracted against cDNA from a pool of 10 normal tissues, including normal lung, brain, kidney, liver, pancreas, skin, heart, spleen, esophagus and trachea.

Seventy-four clones were isolated and sequenced. The determined cDNA sequences for 22 of these clones are provided in SEQ ID NO: 223-244. The sequence of SEQ ID NO: 241 showed no significant homologies to previously

identified sequences. The sequences of SEQ ID NO: 223, 225, 232, 233, 235, 238, 239, 242 and 243 showed some similarity to previously identified gene sequences, while the sequences of SEQ ID NO: 224, 226-231, 234, 236, 237, 240, 241 and 244 showed some similarity to previously isolated ESTs.

~~The sequences of an additional 12 clones isolated during characterization~~
of cDNA libraries prepared from lung tumor tissue are provided in SEQ ID NO: 813-824. Comparison of these sequences with those in the GenBank database and the GeneSeq DNA database revealed no significant homologies to previously identified sequences.

EXAMPLE 2

SYNTHESIS OF POLYPEPTIDES

Polypeptides may be synthesized on a Perkin Elmer/Applied Biosystems Division 430A peptide synthesizer using Fmoc chemistry with HPTU (O-Benzotriazole-N,N,N',N'-tetramethyluronium hexafluorophosphate) activation. A Gly-Cys-Gly sequence may be attached to the amino terminus of the peptide to provide a method of conjugation, binding to an immobilized surface, or labeling of the peptide. Cleavage of the peptides from the solid support may be carried out using the following cleavage mixture: trifluoroacetic acid:ethanedithiol:thioanisole:water:phenol (40:1:2:2:3). After cleaving for 2 hours, the peptides may be precipitated in cold methyl-t-butyl-ether. The peptide pellets may then be dissolved in water containing 0.1% trifluoroacetic acid (TFA) and lyophilized prior to purification by C18 reverse phase HPLC. A gradient of 0%-60% acetonitrile (containing 0.1% TFA) in water (containing 0.1% TFA) may be used to elute the peptides. Following lyophilization of the pure fractions, the peptides may be characterized using electrospray or other types of mass spectrometry and by amino acid analysis.

EXAMPLE 3

PREPARATION OF ANTIBODIES AGAINST LUNG CANCER ANTIGENS

Polyclonal antibodies against the lung cancer antigen L773P (SEQ ID NO: 783) were prepared as follows.

Rabbits were immunized with recombinant protein expressed in and purified from *E. coli* as described above. For the initial immunization, 400 µg of antigen combined with muramyl dipeptide (MDP) was injected subcutaneously (S.C.). Animals were boosted S.C. 4 weeks later with 200 µg of antigen mixed with incomplete Freund's Adjuvant (IFA). Subsequent boosts of 100 µg of antigen mixed with IFA were injected S.C. as necessary to induce high antibody titer responses. Serum bleeds from immunized rabbits were tested for L773P-specific reactivity using ELISA assays with purified protein and showed strong reactivity to L773P. Polyclonal antibodies against L773P were affinity purified from high titer polyclonal sera using purified protein attached to a solid support.

EXAMPLE 4

PROTEIN EXPRESSION OF LUNG TUMOR-SPECIFIC ANTIGENS

Full-length L773P (amino acids 2-364 of SEQ ID NO: 783), with a 6X His Tag, were subcloned into the pPDM expression vector and transformed into either BL21 CodonPlus or BL21 pLysS host cells using standard techniques. High levels of expression were observed in both cases. Similarly, the N-terminal portion of L773P (amino acids 2-71 of SEQ ID NO: 783; referred to as L773PA), with a 6X His tag were subcloned into the vector pPDM and transformed into BL21 CodonPlus host cells. Low levels of expression were observed by N-terminal sequencing. The sequence of the expressed constructs for L773P and L773PA are provided in SEQ ID NO: 784 and 785, respectively.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

CLAIMS

What is claimed:

1. An isolated polypeptide, comprising at least an immunogenic portion of a lung tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(a) sequences recited in SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826;

(b) sequences that hybridize to a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826 under moderately stringent conditions; and

(c) complements of sequences of (a) or (b).

2. An isolated polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-

782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826 or a complement of any of the foregoing polynucleotide sequences.

3. An isolated polypeptide comprising a sequence recited in any one of SEQ ID NOs: ~~786, 787, 791, 793, 795, 797-799, 806, 809 and 827.~~

4. An isolated polynucleotide encoding at least 15 amino acid residues of a lung tumor protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide comprising a sequence recited in any one of SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826, or a complement of any of the foregoing sequences.

5. An isolated polynucleotide encoding a lung tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide comprising a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826 or a complement of any of the foregoing sequences.

6. An isolated polynucleotide, comprising a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826.

7. An isolated polynucleotide, comprising a sequence that hybridizes to a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826 under moderately stringent conditions.

8. An isolated polynucleotide complementary to a polynucleotide according to any one of claims 4-7.

9. An expression vector, comprising a polynucleotide according to any one of claims 4-8.

10. A host cell transformed or transfected with an expression vector according to claim 9.

11. An isolated antibody, or antigen-binding fragment thereof, that specifically binds to a lung tumor protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30,

33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, ~~296, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808~~ and 811-826 or a complement of any of the foregoing polynucleotide sequences.

12. A fusion protein, comprising at least one polypeptide according to claim 1.

13. A fusion protein according to claim 12, wherein the fusion protein comprises an expression enhancer that increases expression of the fusion protein in a host cell transfected with a polynucleotide encoding the fusion protein.

14. A fusion protein according to claim 12, wherein the fusion protein comprises a T helper epitope that is not present within the polypeptide of claim 1.

15. A fusion protein according to claim 12, wherein the fusion protein comprises an affinity tag.

16. An isolated polynucleotide encoding a fusion protein according to claim 12.

17. A pharmaceutical composition, comprising a physiologically acceptable carrier and at least one component selected from the group consisting of:

- (a) a polypeptide according to claim 1;
- (b) a polynucleotide according to claim 4;
- (c) an antibody according to claim 11;
- (d) a fusion protein according to claim 12; and
- (e) a polynucleotide according to claim 16.

18. An immunogenic composition comprising an immunostimulant and at least one component selected from the group consisting of:

- (a) a polypeptide according to claim 1;
- (b) a polynucleotide according to claim 4;
- (c) an antibody according to claim 11;
- (d) a fusion protein according to claim 12; and
- (e) a polynucleotide according to claim 16.

19. An immunogenic composition according to claim 18, wherein the immunostimulant is an adjuvant.

20. An immunogenic composition according to any claim 18, wherein the immunostimulant induces a predominantly Type I response.

21. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 17.

22. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of an immunogenic composition according to claim 18.

23. A pharmaceutical composition comprising an antigen-presenting cell that expresses a polypeptide according to claim 1, in combination with a pharmaceutically acceptable carrier or excipient.

24. A pharmaceutical composition according to claim 23, wherein the antigen presenting cell is a dendritic cell or a macrophage.

25. An immunogenic composition comprising an antigen-presenting cell that expresses a polypeptide comprising at least an immunogenic portion of a lung tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

~~(a) sequences recited in SEQ ID NOs: 1, 11, 13, 15, 20, 23, 27, 29, 30, 33, 34,~~
39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826;

(b) sequences that hybridize to a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 under moderately stringent conditions; and

(c) complements of sequences of (i) or (ii);
in combination with an immunostimulant.

26. An immunogenic composition according to claim 25, wherein the immunostimulant is an adjuvant.

27. An immunogenic composition according to claim 25, wherein the immunostimulant induces a predominantly Type I response.

28. An immunogenic composition according to claim 25, wherein the antigen-presenting cell is a dendritic cell.

29. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of an antigen-presenting cell that expresses a polypeptide comprising at least an immunogenic portion of a lung tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(a) sequences recited in SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826;

(b) sequences that hybridize to a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 under moderately stringent conditions; and

(c) complements of sequences of (i) or (ii) encoded by a polynucleotide recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826;

and thereby inhibiting the development of a cancer in the patient.

30. A method according to claim 29, wherein the antigen-presenting cell is a dendritic cell.

31. A method according to any one of claims 21, 22 and 29, wherein the cancer is lung cancer.

32. A method for removing tumor cells from a biological sample, comprising ~~contacting a biological sample with T cells that specifically react with a lung tumor protein,~~ wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826; and

(ii) complements of the foregoing polynucleotides;

wherein the step of contacting is performed under conditions and for a time sufficient to permit the removal of cells expressing the antigen from the sample.

33. A method according to claim 32, wherein the biological sample is blood or a fraction thereof.

34. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient a biological sample treated according to the method of claim 32.

35. A method for stimulating and/or expanding T cells specific for a lung tumor protein, comprising contacting T cells with at least one component selected from the group consisting of:

(a) polypeptides comprising at least an immunogenic portion of a lung tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) sequences recited in SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826;

(ii) sequences that hybridize to a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 under moderately stringent conditions; and

(iii) complements of sequences of (i) or (ii);

(b) polynucleotides encoding a polypeptide of (a); and

(c) antigen presenting cells that express a polypeptide of (a);

under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

36. An isolated T cell population, comprising T cells prepared according to the method of claim 35.

37. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a T cell population according to claim 36.

38. A method for inhibiting the development of a cancer in a patient, comprising the steps of:

(a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with at least one component selected from the group consisting of:

(i) polypeptides comprising at least an immunogenic portion of a lung tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(1) sequences recited in SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826;

(2) sequences that hybridize to a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 under moderately stringent conditions; and

(3) complements of sequences of (1) or (2);

(ii) polynucleotides encoding a polypeptide of (i); and

(iii) antigen presenting cells that expresses a polypeptide of (i);

such that T cells proliferate; and

(b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of a cancer in the patient.

39. A method for inhibiting the development of a cancer in a patient, comprising the steps of:

(a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with at least one component selected from the group consisting of:

(i) polypeptides comprising at least an immunogenic portion of a lung tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(1) sequences recited in SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826;

(2) sequences that hybridize to a sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 under moderately stringent conditions; and

(3) complements of sequences of (1) or (2);

(ii) polynucleotides encoding a polypeptide of (i); and

(iii) antigen presenting cells that express a polypeptide of (i);

such that T cells proliferate;

(b) cloning at least one proliferated cell to provide cloned T cells; and

(c) administering to the patient an effective amount of the cloned T cells, and thereby inhibiting the development of a cancer in the patient.

40. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with a binding agent that binds to a lung tumor protein, wherein the tumor protein comprises an amino acid ~~sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs: 1, 11,~~ 13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 or a complement of any of the foregoing polynucleotide sequences;

(b) detecting in the sample an amount of polypeptide that binds to the binding agent; and

(c) comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

41. A method according to claim 40, wherein the binding agent is an antibody.

42. A method according to claim 43, wherein the antibody is a monoclonal antibody.

43. A method according to claim 40, wherein the cancer is lung cancer.

44. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to a lung tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any

one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 or a complement of any of the foregoing polynucleotide sequences;

(b) detecting in the sample an amount of polypeptide that binds to the binding agent;

(c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polypeptide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

45. A method according to claim 44, wherein the binding agent is an antibody.

46. A method according to claim 45, wherein the antibody is a monoclonal antibody.

47. A method according to claim 44, wherein the cancer is a lung cancer.

48. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a lung tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-

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~~(b) detecting in the sample an amount of a polynucleotide that hybridizes to~~
the oligonucleotide; and

(c) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

49. A method according to claim 48, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

50. A method according to claim 48, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

51. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a lung tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800-804, 807, 808 and 810-826 or a complement of any of the foregoing polynucleotide sequences;

- (b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;
- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and
- (d) comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

52. A method according to claim 51, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

53. A method according to claim 51, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

54. A diagnostic kit, comprising:

- (a) one or more antibodies according to claim 11; and
- (b) a detection reagent comprising a reporter group.

55. A kit according to claim 54, wherein the antibodies are immobilized on a solid support.

56. A kit according to claim 54, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

57. A kit according to claim 54, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups, enzymes, biotin and dye particles.

58. An oligonucleotide comprising 10 to 40 contiguous nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes a lung tumor

protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, ~~162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240,~~ 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-826, or a complement of any of the foregoing polynucleotides.

59. A oligonucleotide according to claim 58, wherein the oligonucleotide comprises 10-40 contiguous nucleotides recited in any one of SEQ ID NO: 1, 11-13, 15, 20, 23-27, 29, 30, 33, 34, 39, 41, 43-46, 51, 52, 57, 58, 60, 62, 65-67, 69-71, 74, 76, 79, 80, 84, 86, 89-92, 95, 97, 98, 101, 110, 111, 113-119, 121-128, 130-134, 136, 138, 139, 141, 143, 146-151, 153, 154, 157-160, 162-164, 167-178, 180, 181, 183, 186-190, 192, 193, 195-220, 224, 226-231, 234, 236, 237, 240, 241, 244-246, 248, 254, 255, 261, 262, 266, 270, 275, 280, 282, 283, 288, 289, 290, 292, 295, 301, 303, 304, 309, 311, 341-782, 784, 785, 790, 792, 794, 796, 800, 802, 804, 807, 808 and 811-82.

60. A diagnostic kit, comprising:

- (a) an oligonucleotide according to claim 59; and
- (b) a diagnostic reagent for use in a polymerase chain reaction or hybridization assay.

SEQUENCE LISTING

<110> Corixa Corporation
 Wang, Tongtong
 Bangur, Chaitanya S.
 Lodes, Michael A.
 Fanger, Gary
 Vedvick, Tom
 Carter, Darrick
 Retter, Marc
 Mannion, Jane

<120> COMPOSITIONS AND METHODS FOR THERAPY AND
 DIAGNOSIS OF LUNG CANCER

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 <213> Homo sapien

<400> 21
 tgccccctgta ttggattgcc acacggctca cattgcatgc aagtttgctg agctgaagga 60
 aaagattgat cgccgttctg gtaaaaagct ggaagatggc cctaaattct tgaagtctgg 120
 tgatgctgcc attgttgata tggttcctgg caagcccatg tgtgttgaga gcttctcaga 180
 ctatccacct ttgggtcgtt ttgctgttcg tgatatgaga cagacagttg cgggtgggtgt 240
 catcaaagca gtggacaaga aggctgctgg agctggcaag gtcaccaagt ctgccagaa 300
 agctcagaag gctaaatgaa tattatccct aatacctgcc accccactct taatcagtgg 360
 tggagaagac gtctcagaac tgtttgtttc aattgg 396

<210> 22
 <211> 277
 <212> DNA
 <213> Homo sapien

<400> 22

ggaaccatgt	ggccggcgcc	cttgatcgtg	agaaaggcga	tgtgggagaa	ctccttcacg	60
aagccggcaa	tctgctcccc	gctgtccccg	tacttcacta	accagggccg	gcgctgcacc	120
tccatcttct	ggttgagggg	atccacaaac	cactcatccc	ccatgaaatt	gcaggccatg	180
tctacatctc	cattatataa	taggatctgg	gatttctgtg	agctaagcag	cttcagatac	240
tgggagttca	tgcttcggta	gagacggcgg	tactgta			277

<210> 23

<211> 634

<212> DNA

<213> Homo sapien

<400> 23

tctgaccatc	catatccaat	gttctcattt	aaacattacc	cagcatcatt	gtttataatc	60
agaaactctg	gtccttctgt	ctgggtggcac	ttagagtctt	ttgtgccata	atgcagcagt	120
atggagggag	gattttatgg	agaaatgggg	atagtcttca	tgaccacaaa	taaataaagg	180
aaaactaagc	tgcatctgtg	gttttgaaaa	ggttattata	cttcttaaca	attctttttt	240
tcagggactt	ttctagctgt	atgactgtta	cttgaccttc	tttgaaaagc	attcccaaaa	300
tgctctatct	tagatagatt	aacattaacc	aacataatct	tttttagatc	gagtcagcat	360
aaattttctaa	gtcagcctct	agtcgtgggt	catctctttc	acctgcattt	tatttggtgt	420
ttgtctgaag	aaaggaaaaga	ggaaaagcaaa	tacgaattgt	actatttgta	ccaaatcttt	480
gggattcatt	ggcaaataat	ttcagtgtgg	tgtattatta	aatagaaaaa	aaaaattttg	540
tttcctaggt	tgaagggtcta	attgatacgt	ttgacttatg	atgaccattt	atgcactttc	600
aatgaatttt	gctttcaaaa	taaatgaaga	gcag			634

<210> 24

<211> 512

<212> DNA

<213> Homo sapien

<400> 24

gcaaaacaag	cctaagcaag	cacaacgaag	agcagaagtc	agtgaatta	aaaagaggaa	60
aaagaaaaat	cataaaaaatc	ataaaaaagtt	atttctttga	aaagatcaat	gaaatttagc	120
aagactgaca	cagataaaaaa	ggaatttagac	ccaaatcagt	gaacaggaat	gaaatagagg	180
atatcactac	agaggctgca	gccattgaaa	ggataattag	gaaatcccac	agataacttt	240
gtgctcataa	atltgacaat	gtagaggaaa	tatcttttagt	tttaattagc	tttttatctt	300
agtttttctc	aaaaactaaa	acttaataaaa	actcaaccaa	gacaaaatag	acaatcagaa	360
tgtaggcata	cctcagagat	gtggcggatt	tggtttcaga	ctactgcaat	aaaccaaata	420
tggcaataaa	aggagtcaca	gaaagtgggt	tcccagtgtg	tatatataaa	agttacattt	480
actctatgaa	gtgcaataac	atlttgctca	aa			512

<210> 25

<211> 461

<212> DNA

<213> Homo sapien

<400> 25

ctctgtttca	gcacctcatt	gggattattg	aactcattaa	attctttaca	tgaacttgaa	60
ttgttcattg	aaatctctag	ccatttccct	ggtaaacag	gataatcttt	ttttttcact	120
aaagaacatt	cgtgggtgggt	tagtgatgag	gttaatatct	ccctcttgtc	cacctccaca	180
ttggaaaaac	cacgttggac	tgagttttga	ggagcaaaga	actaatcact	tgaccaaagg	240
ggccctgtat	ccccacaagc	cctgggtatt	tttctctcat	agagagaaga	gggtctgtat	300
ggatacctga	aaatgtgatt	ttatatattc	ttggcatcca	ggggagaaaa	atcaaaaagc	360
aaggaagtta	cagttatctc	cccagaaatt	aatgggtcat	gtcaagacta	taggttttca	420

tttctttctg ttgcttgcta gaatgatgtt cttgtgggaa a

461

<210> 26

<211> 317

<212> DNA

<213> Homo sapien

<400> 26

tgctggagtc ggaactgctg cctttgtttg ggggccttgt ttcttaaate agttccctct	60
taggatttat tacactaaaa aaaaattagt ttttgaaaag aaataggaga atacagaaac	120
atgaatttca cgaggctatc atctaacagt gggggctttc tacacacgtg gtgccaaaat	180
gtgtcattct gagtcaattg caattcctct ctaggagtga aaagagataa aagataagcc	240
aagaacctg gacagattct tgggtgttgg gacaaagagg aaaggacctg agaatggggc	300
tgggtggggag agggggg	317

<210> 27

<211> 250

<212> DNA

<213> Homo sapien

<400> 27

taattgctgt gattattaga attctatcat gactgtattg tagtttttgc tctatttcag	60
ataagcmaga tctaagaagt tatcaaaact attcttttaa atgctaaagc aggtaacctt	120
ttcttccatt atttttctct cctaccactg agttttgtaa tgaattcctt gtgtatacaa	180
gcaatacagg tgaataactaa actgttattt ttagcttctt caaaagctat tttagaaagc	240
ttcttgaaa	250

<210> 28

<211> 532

<212> DNA

<213> Homo sapien

<400> 28

cctatatcat tcattttatc agaagctgct tgctgcttag caagttgggtg ggtttgattt	60
tccttggttg ctttgbagac ctcccttgag aggattcctt ctggatggag atttcttltg	120
tgctgtctcc cttgcbacaa ctctgaccaa gattgcattg cgctatgtag ctttggttca	180
ggagaagaaa aagcaaaatt cttttgttgc tgaggctatg ttgctcatgg ctactatcct	240
gcatttggga aaatcctctc ttctaagaa gccaatctat gatgatgatg tggatcgaat	300
ttccctgtgc ctcaaggctc tgtctgaatg ttcaccttta atgaatgaca ttttcaataa	360
ggaatgcaga cagtcctctt ctccatggtt atctgctaaa ctagaagaag agaaattatc	420
ccaaaagaaa gaatctgaaa agaggaatgt gacagtacag cctgatgacc ccatttctct	480
catgcaacta actgctaaga atgaaatgaa ctgcaaggaa gatcagtttc ag	532

<210> 29

<211> 486

<212> DNA

<213> Homo sapien

<400> 29

ctgttttttg acctaatata cywttgcaag tggaaaccaa gaaataattg tagcataact	60
ctctctattg tcatgttgct tctttctgca aatatatctt acaagttaga ctttaaacct	120
ttgatctccc acaccaaaaag agaaaataat atttatatgg aagtaatttt attttagtgt	180
ttgtgattta ttgtggagag caggbgttta aaaatttttag aatttctttt taacaaaatc	240
aaatacattg ttaaggtaac aaagaataat tcactatttc agcatttcaa agcaacatat	300
tctacaactt caaagatatt tgcaaaaata atacaactgt tgaagttcaa atgttatgga	360

aagaaacatt agaagtatga aaagtggtag aaaaacatgt ttctttttat tctcttggat	420
atatatctat atatttagga aaatacatat atgtatgtgt atgtatatat atgtatgaaa	480
atatac	486

<210> 30
 <211> 240
 <212> DNA
 <213> Homo sapien

<400> 30	
aagacctgag gaagggaaaac aaattggcct cctgctgaag aakcaaaata gacatttttt	60
aatgtctctt gaccccagtt ccaagttcac cctggtgctt gttcttcttc ccaccttttg	120
gggtttctata actgcatccc ccacacatct ttcaccacca ccccatatat accagctctc	180
ctgttggtggg attcaggaca taggaagagt tgctgaaggc acgggtgctt ttgggattcg	240

<210> 31
 <211> 233
 <212> DNA
 <213> Homo sapien

<400> 31	
ccattgatgc aggatatcgg cacattgact gtgcctatgt ctatcagaat gaacatgaag	60
tgggggaagc catccaagag aagatccaag agaaggctgt gaagcgggag gacctgttca	120
tcgtcagcaa gttgtggccc actttctttg agagacccct tgtgaggaaa gcctttgaga	180
agaccctcaa ggacctgaag ctgagctatc tggacgtcta tcttattcac tgg	233

<210> 32
 <211> 233
 <212> DNA
 <213> Homo sapien

<400> 32	
gaggaatgct ggactggagg cccctggagc cagatggcaa gagggtgaca gcttcccttc	60
ctgtgtgtac tctgtccagt tcccttagaa aaaatggatg cccagaggac tcccaaccct	120
ggcttggggt caagaaacag ccagcaagag ttaggggcct tagggcactg ggctgttgtt	180
ccattgaagc cgactctggc cctggccctt acttgcttct ctgctctct agg	233

<210> 33
 <211> 319
 <212> DNA
 <213> Homo sapien

<400> 33	
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ctggaattgc ttggttctcc tccatgtggc ctctccagta ggctagctca ggcttattca	120
catgatggct tcaggattcc aaagagagtg agagtagaag ctgaaagact tcttgagttc	180
ttggcctgga actgggacta ggacagtgtc acttctgcta agttcttttg gtcagagcaa	240
atcacaaggc tttaccaga ttcaagggat gagaaacaga ctacatgtct tgatgagggg	300
aaccacaaag agcttgtgg	319

<210> 34
 <211> 340
 <212> DNA
 <213> Homo sapien

<400> 34
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 caactgccag atggatgtgg ctggaagtca gaggacattc tcgtgggttc gtgggcctag 120
 ggtacaaatg acctcagcgt gacagcaaac aggacagaga agaccaggct ctactcagg 180
 aatccaccag ccaggagaat gacaatgttg aacaccggaa ccctgatgat atctgtcaca 240
~~tttgtaaggc tgatttcaga gtcaggagtc gaggacatcg cagttgactt gggcggagct~~ 300
 tgggtcacag ttctggggct ggtatagagt gggcacaagg 340

<210> 35
 <211> 170
 <212> DNA
 <213> Homo sapien

<400> 35
 acatgggtcc ttcactccctc gctgagatgt tgcggcagcc ttttcttcca atgcggttgt 60
 ggcaggagaa tccacggatg taatgttttc acctttttcc ctgagggtgc tttctgagga 120
 accagycctt aagagggtggg gtcttggatt cctgacccag gcgtccggca 170

<210> 36
 <211> 475
 <212> DNA
 <213> Homo sapien

<400> 36
 ctgttttttg acttaattaa ccattgcaag tggaaaccaa gaaataattg tagcataact 60
 ctctctattg kcatgttgct tctttctgca aatatactct agaagttaga ctttaaacct 120
 ttgatctccc acacaaaaag agaaaataat atttatatgg aagtaatttt attttagtgt 180
 ttgtgattta ttgtggagag cagggtgtta aaaatttttag aatttcttta acaaaattct 240
 aaagagaaaa taaaaaagaa atcacagtat ttacagagat aacagaatgg cttagccatg 300
 caaaacaaat aacttttggt tttccccctt tacttttggt taaatgttga ccaagattca 360
 attttttttc ctgccaaata aaacttcaat aaaagtttag aggcaaaata acgtattttc 420
 tttttttccc ataatatttt atacagcatc gagtctaaga atattttatg cattt 475

<210> 37
 <211> 246
 <212> DNA
 <213> Homo sapien

<400> 37
 ccttgagctt gggccgggca ctgaggcgcc ccacatatgc tgagagcagg gggaaacgcat 60
 ccaggcagcc aggggctagg acctcatgga tcagcagcaa gtccagcagg ttgtagtcag 120
 cgaaggagat ctgggtctccc acaatgaagg tcttgccctc ctggttctgg gacagcaggg 180
 tctcaaaagg cttcagttgc ccgggcagtg ccttcacata gtcatecttg ccacctcat 240
 agttgg 246

<210> 38
 <211> 512
 <212> DNA
 <213> Homo sapien

<400> 38
 gctggaagtg aaatgcagat cagacccatt gtgatgtcac agaaagatgg ggacaggcca 60
 aagaaaaaag tgactttcaa ctcttcttcc atcattttta tcatcaccag tgatgaatca 120
 ctgtcagttg acgacagcga caaaaccaat ggggccaaaag ttgatgtaat ccaagttcgt 180
 cctttgtagg aatgaagaat ggcaacgaaa gatggggcct taaattggat gccacttttg 240

gacttttcac	ataagaagt	tctggaatac	ccgttctatg	taatatcaac	agaaccttgt	300
gggtccagcag	gaaatccgaa	ttgcccatac	gctcttgggc	ctcaggaaga	gggtgaacaa	360
aaacaaattc	ttttaattca	acgggtgctt	tacataatga	aaaaaccact	tgtggcacac	420
gatgggcac	taacatcac	atcttctaat	gtgttggaga	ttttcatttc	aaatatattt	480
tttaattac	tctattttcc	aaaacacgta	at			512

<210> 39
 <211> 370
 <212> DNA
 <213> Homo sapien

<400> 39						
ttttatgaac	aagatataag	gatcaaaaaa	aagggtgttg	atatgttttt	ccaagcagag	60
atgtactcga	ctctgtccta	tttagccttc	ccatacctga	cttctaatac	cttttctctg	120
tgccttycca	tctccctaac	ccccctcac	agggatgcct	cctcccaagg	ctccagaaac	180
tctgaccttc	gcactgctgg	agggagccca	tgaattgctg	gtcaatatcg	ctcctctctt	240
akactccatc	ctgcgtgtgc	ttcttcttac	aagagctaga	gaggcactga	ctgataaata	300
cctgtcacct	gcccctttcc	cagaggggtga	aactccaccc	actcccactg	cagaaatgaa	360
tcttaaatgg						370

<210> 40
 <211> 204
 <212> DNA
 <213> Homo sapien

<400> 40						
cctgaggggt	ttccctttaa	atcttcattg	agttgtccat	ctccagcata	tagggcttca	60
ggagcagagc	agacctgtgt	tttagtgggt	ccatgggata	aaatgggatt	ggaggagcta	120
gaagaattca	gggtctgggc	caatctgcca	gtcttctctga	aatatcgaaa	atacaccagg	180
gctgctatat	cagagccacc	ctgg				204

<210> 41
 <211> 447
 <212> DNA
 <213> Homo sapien

<400> 41						
caggcagcaa	ttcgtaaaga	attaaatgag	tacaaaagta	atgaaatgga	ggtacatgca	60
tcaagcaagc	acttgacaag	attccacagg	ccatagagat	tttcttctga	gaagaatttg	120
tgtttaattt	tttgatacca	acactgaaca	ttcatcaggg	aactttctctg	aagttcagct	180
caagactacc	ctacctgctg	tgtttgtgag	aagagtagga	tcacacacac	aggtgcaatc	240
ttgaccacac	ttacctgcaa	gaggagtaac	cagaggacac	acttcccttc	ttctttgggtg	300
tctgaggagt	gtgaactgtt	ggggtcagtt	aagacccaac	ataactctat	cagaagaaaa	360
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tgcattgtgca	ggctcaccac	tcccagg				447

<210> 42
 <211> 498
 <212> DNA
 <213> Homo sapien

<400> 42						
ctggttttgt	aaaaacagtc	tctttattct	actgtgctga	aaccctcacc	aatatagaaa	60
attagattct	cattgcactg	aactatattt	atatgcctaa	gtatgtagaa	gtaaaattat	120
ataccccaaa	aggattttat	cttggtgtat	atattaaatg	ttatttctgc	atatagggtc	180

ttttatggag	aaactgatga	tgataagctt	aatactcact	tgttttagcag	catctgaatg	240
cacaaatgct	ttatatatct	cttctgcttt	acagggcaaa	agatcagact	ctggtttctt	300
atagtcttca	caagccagcc	agaactcaat	attctcctca	ctgaattcag	actttaggaa	360
acttccaaag	acattttgac	cagtttggtt	ggcaagaagt	ttttccagag	attgagacca	420
ttgcattact	tcagcagcag	aaagtacatc	cttggacttg	gaagatttca	ttccagattc	480
cagatgtggg	atcataga					480

<210> 43
 <211> 312
 <212> DNA
 <213> Homo sapien

<400> 43						
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ttcatgacag	tgtctgggct	gccaaagaag	cagtgccctt	gtgatcattt	caagggcaat	120
gtgaagaaaa	caagacacca	aaggcaccac	agaaagccaa	acaagcattc	cagagcctgc	180
cagcaatttc	tcaaacaatg	tcagctaaga	agctttgctc	tgcttttgta	ggagctctga	240
gcgcccactc	ttccaattaa	acattctcag	ccaagaagac	agtgagcaca	cctaccagac	300
actctttctt	tc					312

<210> 44
 <211> 417
 <212> DNA
 <213> Homo sapien

<400> 44						
ctaacacatt	tactctccac	tattcgtact	ctggtagcca	tgtaacccc	atcagagatt	60
ccttctcaag	ccatgtctca	gagctgagag	gcctcccagc	aagttttgca	gctcacagtt	120
ttttcgttaa	attacttatt	ctataaaaatt	ggagtaggcc	ataaactttg	gagggcccta	180
gaccaatttt	ttggattatt	tttcgtcttc	tatcattccg	ctgatcttag	atattctctg	240
cattaaatat	taaatatcac	ttctaggctg	aaaaatcccc	ctaaaaatat	ttctagctca	300
gatttttctt	ccaaattctg	caatagaaga	tcacaatgtg	aactctgcat	ctccatgtta	360
aagtctaatg	gacattcaca	cttagcatgt	ctcaaagaaa	tctcatgtaa	accatgg	417

<210> 45
 <211> 494
 <212> DNA
 <213> Homo sapien

<400> 45						
cgcgtgtctg	tggtatgtgt	acacgtgcat	gttctgcatg	tctgtaggtc	acacatgctt	60
tggtgcatgt	acacgtgtgt	gtgtgtatgc	gtgtaggagc	tcacacttgt	gtacacgttt	120
gtgtgcatgc	atgtgtgcag	gagcttgac	gtttgtggtg	ggtacatgta	catatgtgag	180
tgatcctgtg	tgcaagcccc	catgtggaca	tggctatgag	tgagcgtgga	gccaaaagcc	240
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gtgtgaatca	gtgaccgtgt	ctctgaccaa	catgctgaat	tacaaattga	taatttatta	420
acctgtgcag	caacaaataa	gatttttcaa	aactcaacaa	agtgtcctaa	gttgacatta	480
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<210> 46
 <211> 516
 <212> DNA
 <213> Homo sapien

<400> 46
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 ctctctattgc taattttgtg acctccaaag ctttacttct cggaaacctcc tcttttggcc 120
 gtcatttgat cattcaactc ttgtgcagtg gcaactcccg ctattttggg gtgttggttt 180
 gttactacac agtgagcaca aacatgggtg tccaatacag aggcctcttc tgtcaggtgt 240
 caaccagaaa gttcatctaa cactgtgata ttgtcatctc tcttgaacag ttgttggtctg 300
 aagattcatt tgatgaatcg atttttcaaa agagatgatt cttgggtctt ccgagcgctc 360
 agctctcccg ccgagcttct ttgagacgtc ctcaggtgtc ctttgacgat gcgtcctcca 420
 ctttcacaca ctctagcatt ccttcaactg ggtcttcatt gccccacatt gggcagccag 480
 gaatgttggg gtgatcagac acaacaccag gtcatg 516

<210> 47
 <211> 459
 <212> DNA
 <213> Homo sapien

<400> 47
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 tatagcattg ggcacactcc agcagacgcc cgaattcaaa tcttggaagg atggaagaaa 120
 cgcctgggga atatttggga tgagacacca ctgtattttg ctccaagcag cctctttgac 180
 ctaaaccttc aggcaggatt cttaatgaaa aaagaggtac aggatgagga gaaaaacaag 240
 aaatttggcc ttctgtggg ccatcacttg ggcaagtcca tcccaactga caaccagatc 300
 aaagctagaa aatgagattc cttagccttg atttcttct aacatgttat caaatctggg 360
 tatctttcca ggcttccctg acttgcttta gtttttaaga ttgtgtttt tctttttcca 420
 caaggaataa atgagagggg atcgaksaaa aaaaaaaaaa 459

<210> 48
 <211> 430
 <212> DNA
 <213> Homo sapien

<400> 48
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 tctttctcac cattcagcca ctgataggag ccctcgtctg aggaaatgct gtgattataa 120
 agccttctga actgagtga aatacagcca agatcttggc aaagcttctc cctcagtatt 180
 tagaccagga tctctatatt gttattaatg gtgggtgttg ggaaaccacg gagctcctga 240
 agcagcgatt tgaccacatt ttctatacgg gaaacactgc ggttggcaaa attgtcatgg 300
 aagctgctgc caagcatctg acccctgtga ctcttgaact gggagggaaa agtccatgtt 360
 atattgataa agattgtgac ctggacattg ttgtcagacg cataacctgg ggaaaataca 420
 tgaattgtgg 430

<210> 49
 <211> 288
 <212> DNA
 <213> Homo sapien

<400> 49
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 agctttggwg caattcccat cgaccagagt tggcccgacc agccttggaa aggtcactga 120
 aaaatcttca attggattat gttgacctc accttattca tttccagtg tctgtaaagc 180
 caggtgagga agtgatccca aaagatgaaa atggaaaaat actatttgac acagtggatc 240
 tctgtgccac gtgggagggc rtggagaagt gtaaagatgc aggattgg 288

<210> 50
 <211> 411

<212> DNA

<213> Homo sapien

<400> 50

ccagagaatg	acattcatgt	ccccgtggat	cccttgacaga	gagtacatgg	agccactgcc	60
accagtggtg	atgggaagga	ctgttttttt	ctctgggaag	ggtcctttgt	catcacatggc	120
agcgtaagtg	taagcaaact	ctcctatgaa	cactcgctca	aaccagcctt	tcagaatggc	180
agggactcca	aaccactgca	gggggaactg	gaatatcaca	aggtctgcgg	cttcacagctt	240
cttttgttca	gccacaatat	ctgggctcag	atggccttct	ttataagcca	gaacagactc	300
ggcaggatac	tgaaagtctg	cagggtcctt	cagtttacct	gtgatgtcct	ttctggaaat	360
gatgggattg	aagttcatgg	catagaggtc	cgactccacc	acctcccatc	c	411

<210> 51

<211> 503

<212> DNA

<213> Homo sapien

<400> 51

gatatcttat	gattaaaaac	aaattaaatt	ttaaaacacc	tgaagatata	ttagaagaaa	60
ttgtgcaccc	tcacaaaaac	atacaaagtt	taaaagtgtg	gatctttttc	tcagcaggta	120
tcagttgtaa	ataatgaatt	aggggccaaa	atgcaaaacg	aaaaatgaag	cagctacatg	180
tagttagtaa	tttctagttt	gaactgtaat	tgaatattgt	ggcttcatat	gtattatttt	240
atattgtact	tttttcatta	ttgatggttt	ggactttaat	aagagaaatt	ccatagtttt	300
taatatccca	gaagtgaagc	aatttgaaca	gtgtattcta	gaaaacaata	cactaactga	360
acagaagtga	atgcttatat	atattatgat	agccttaaac	ctttttcctc	taatgcctta	420
actgtcaaat	aattataacc	ttttaaaagca	taggactata	gtcagcatgc	tagactgaga	480
ggtaaacact	gatgcaatta	aga				503

<210> 52

<211> 503

<212> DNA

<213> Homo sapien

<400> 52

gatatcttat	gattaaaaac	aaattaaatt	ttaaaacacc	tgaagatata	ttagaagaaa	60
ttgtgcaccc	tcacaaaaac	atacaaagtt	taaaagtgtg	gatctttttc	tcagcaggta	120
tcagttgtaa	ataatgaatt	aggggccaaa	atgcaaaacg	aaaaatgaag	cagctacatg	180
tagttagtaa	tttctagttt	gaactgtaat	tgaatattgt	ggcttcatat	gtattatttt	240
atattgtact	tttttcatta	ttgatggttt	ggactttaat	aagagaaatt	ccatagtttt	300
taatatccca	gaagtgaagc	aatttgaaca	gtgtattcta	gaaaacaata	cactaactga	360
acagaagtga	atgcttatat	atattatgat	agccttaaac	ctttttcctc	taatgcctta	420
actgtcaaat	aattataacc	ttttaaaagca	taggactata	gtcagcatgc	tagactgaga	480
ggtaaacact	gatgcaatta	aga				503

<210> 53

<211> 531

<212> DNA

<213> Homo sapien

<400> 53

tttttttttt	tttttaaaat	gaggatattt	tattatttca	ggtaattttc	ccagaggkga	60
gaatagtaca	tgggaaattc	tcttttaggc	aggtctagta	ttacagkgtg	gkgctcaagg	120
cgcgccatca	gaacagtgat	actctcccaa	cagatttcat	ccaccccgct	tcactaact	180
tttgccataa	aaattcctct	gaattgtatc	ttcttggaag	aagtaaatat	ctgttcgact	240
atacaaagaa	acagagaaac	cactcccatt	gcaatcaatc	ttcaagagag	ggagcaggca	300

agccgtgttc	tttctgctga	gttttataga	ctctgacaag	ctgtgaaata	aacataaaca	360
gaagacaaaa	cagtgccaca	aataagcagt	agatgacctt	gtgacaagac	ggcattgcag	420
aacaaagact	gacgtttaaa	ggggagtcac	gcagagtaac	atgggaacac	aagcctgaca	480
acctggctcag	cttccactta	ctctagctcc	tttgaactct	caacactaaa	a	531

<210> 54

<211> 450

<212> DNA

<213> Homo sapien

<400> 54

ccatgggtgt	ctggagcwcc	ctgaaactgt	atcaaagttg	tacatatctt	caaacatttt	60
taaaatgaaa	aggcactctc	gtgttctcct	cactctgtgc	actttgctgt	tgggtgtgaca	120
aggcatttaa	agatgtttct	ggcattttct	ttttatttgt	aagggtgtgg	taactatggt	180
tattggctag	aaatcctgag	ttttcaactg	tatatatcta	tagtttgtaa	aaagaacaaa	240
acaaccgaga	caaacccttg	atgctccttg	ctcggcgctg	aggctgtggg	gaagatgcct	300
tttgggagag	gctgtagctc	agggcggtgc	ctgtgaggct	ggacctgttg	actctgcagg	360
gggcacccat	ctagcttcag	gttgtcttgt	ttctgtatat	agtacatag	cattctgctg	420
ccatcttagc	tgtggacaaa	gggggggtcag				450

<210> 55

<211> 648

<212> DNA

<213> Homo sapien

<400> 55

caacttcaac	cacaggctgc	tggasatgat	cctcarcaag	ccagggtcca	agtacaagcc	60
tgtctgcaac	caggtggaat	gtcatcctta	cttcaaccag	agaaaactgc	tggatttctg	120
caagtcaaaa	gacattgttc	tggttgccta	tagtgctctg	ggatcccacc	gagaagaacc	180
atgggtggag	ccgaactccc	cgggtgctct	ggaggaccca	gtcctttgtg	ccttggcaaa	240
aaagcacaag	cgaaccccag	ccctgattgc	cctgcgctac	cagctrcagc	gtgggggtgt	300
ggtcctggcc	aagagctaca	atgagcagcg	catcagacag	aacgtgcagg	tgtttgaatt	360
ccagttgact	tcagaggaga	tgaaagccat	agatggccta	aacagaaatg	tgcgatattt	420
gacctttgat	atttttgctg	gccccccctaa	ttatccattt	tctgatgaat	attaacatgg	480
agggcattgc	atgaggtctg	ccagaaggcc	ctgcgtgtgg	atgggtgacac	agaggatggc	540
tctatgctgg	tgactggaca	catcgccctc	ggttaaatct	ctcctgcttg	gygayttcag	600
caagctacag	caaagcccat	tggccggaaa	aaatatcaag	ggtcaaat		648

<210> 56

<211> 536

<212> DNA

<213> Homo sapien

<400> 56

ctggcatgag	aatatttttt	tttttaagtg	cggtagtttt	taaactgttt	gtttttaaac	60
aaactataga	actcttcatt	gtcagcaaag	caaagagtca	ctgcatcaat	gaaagttcaa	120
gaacctcctg	tacttaaaca	cgattcgcaa	cgttctgtta	ttttttttgt	atgtttagaa	180
tgctgaaatg	tttttgaaat	ttaaataaaca	gtattacatt	tttaaaactc	ttctctatta	240
taacagtcaa	tttctgactc	acagcagtga	acaaaacccc	actccattgt	atttggagac	300
tggcctccct	ataaatgtgg	tagcttcttt	tattactcag	tggacctgcc	cgggcgggcg	360
ctcgaagccg	aattccagca	cactggcggc	cgttactagt	ggatccgagc	tcggtaccaa	420
gcttggccgt	aatcatggtc	atagctgttt	cctgtgtgaa	attgttatcc	gtcaccaatt	480
ccacacaaca	tacgagccgg	aagcataaag	tgtaaagcct	ggggtgccta	atgagt	536

<210> 57

<211> 391

<212> DNA

<213> Homo sapien

<400> 57

aggaactact gtcacagagc tgaggcaagg ggattttctca ggtcatttgg agaacaagtg	60
ctttagtagt agtttaagt agtaactgct actgtatctt gtggggggga cttccagaga	120
aatttgaaga ccagatcatg ggtgggtctgc atgtgaatga acaggaatga gccggacagc	180
ctggctgtca ttgctttctt cctcccatc tggacccttc tctgccctta cttttttgtt	240
tctccatcta ccaccatcca ccagtctatt tttttgtcta gttggatttc atttctcttg	300
gaaaatttat tgtttatttg catgtgaccc ttgactgatg gcttcattag cattytgttt	360
ttcttttttg atccttaata gaaaactcaa t	391

<210> 58

<211> 455

<212> DNA

<213> Homo sapien

<400> 58

gaagacatgc ttacttcccc ttcaccttcc ttcattgatgt gggaagagtg ctgcaaccca	60
gccctagcca acgcccagc agagggagtg tgccgagggc ttctgagaag gtttctctca	120
catctagaaa gaagcgctta agatgtggca gccctcttc ttcaagtggc tcttgctctg	180
ttgccctggg agttctcaaa ttgctgcagc agcctccacc cagcctgagg atgacatcaa	240
tacacagagg aagaagagtc aggaaaagat gagagaagtt acagactctc ctgggcgacc	300
ccgagagctt accattcctc agacttcttc acatgggtgt aacagatttg ttctaaaag	360
taaagctcta gaggcgtca aattggcaat agaagccggg ttccaccata ttgattctgc	420
acatgtttac aataatgagg agcagggttg actgg	455

<210> 59

<211> 398

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(398)

<223> n = A,T,C or G

<400> 59

ctcagaggga gcgtgcgggt gtgctctttg tgaaattcca ccatggcgta ccgtggccag	60
ggtcagaaaag tgcagaaggt tatgggtgcag cccatcaacc tcatcttcag atacttacia	120
aatagatcgc ggattcaggt gtggctctat gagcaagtga atatgcggat agaaggctgt	180
atcattggtt ttgatgagta tatgaacctt gtattagatg atgcagaaga gattcattct	240
aaaacaaaagt caagaaaaca actngntcgg atcatgctaa aaggagataa tattactctg	300
ctacaaaagt tctccaacta gaaatgatca atgaagttag aaattgttga gaaggatata	360
gtttgttttt agatgtcctt tgtccaatgt gaacattt	398

<210> 60

<211> 532

<212> DNA

<213> Homo sapien

<400> 60

gacttctgag acctggggga cccgggcctt tgccgcagct actggcaggg cctggccacc	60
tcataggact cagttccctt ctgaacactc gggggacatg ggccctctaac tgcccactct	120
gatatgcctg ggtgagccta ggaggggaagg ctctgatttg gatttctcca gtcaaagctc	180

acagaaaaaa	acctggcact	ttgattttca	tgggatgggc	ctaacagggg	cagtcacctc	240
cgagcagttt	gggaatccag	tttcttgtcc	tgggccctca	ggtcagcctg	gctgaattag	300
gacctttcct	tggcacaggg	gtgagaaaga	gcttggggaa	cgcttggcat	tatggagggc	360
tgggaagggc	tcaaccccca	tttggagaga	agtttgggat	ggagtgggcg	agagattgag	420
agagcgagca	ggaaaagagg	tcttggagcc	tgggactgat	ggtggataag	gcctggaaaag	480
aasatgacsa	ggaggaggag	agagggaagt	gggtggatga	ggagcaggct	ga	532

<210> 61
 <211> 466
 <212> DNA
 <213> Homo sapien

<400> 61						
gcgacggcga	cgtctctttt	gactaaaaga	cagtgtccag	tgtccagcc	taggagtcta	60
cggggaccgc	ctcccgggcc	gccaccatgc	ccaacttctc	tggcaactgg	aaaatcatcc	120
gacggaaaaa	cttcgaggaa	ttgctcaaaag	tgttgggggt	gaatgtgatg	ctgaggaaga	180
ttgctgtggc	tgcagcgtcc	aagccagcag	tggagatcaa	acaggagggg	gacactttct	240
acatcaaaac	ctccaccacc	gtgcgcacca	cagagattaa	cttcaaggtt	ggggaggagt	300
ttgaggagca	gactgtggat	gggaggccct	gtaagagcct	ggtgaaatgg	gagagtgaga	360
ataaaatggt	ctgtgagcag	aagctcctga	agggagaggg	ccccaagacc	tcgtggacca	420
gagaactgac	caacgatggg	gaactgatcc	tgaccatgac	ggcgga		466

<210> 62
 <211> 548
 <212> DNA
 <213> Homo sapien

<400> 62						
ttttgaattt	acaccaagaa	cttctcaata	aaagaaaatc	atgaatgctc	cacaatttca	60
acataccaca	agagaagtta	atttcttaac	attgtgttct	atgattattt	gtaagacctt	120
caccaagtcc	tgatatcttt	taaagacata	gttcaaaatt	gcttttgaaa	atctgtattc	180
ttgaaaatat	ccttgtttgt	tattaggttt	ttaaatacca	gctaaaggat	tacctacttg	240
agtcctcagt	acctcctat	tcagctcccc	aagatgatgt	gtttttgctt	accttaagag	300
aggttttctt	cttattttta	gataattcaa	gtgcttagat	aaattatggt	ttctttaagt	360
gtttatggta	aactctttta	aagaaaatct	aatatgttat	agctgaatct	ttttggtaac	420
tttaaatctt	tatcatagac	tctgtacata	tgttcaaaat	agctgcttgc	ctgatgtgtg	480
tatcatcggt	gggatgacag	aacaaacata	tttatgatca	tgaataatgt	gctttgtaaa	540
aagatttc						548

<210> 63
 <211> 547
 <212> DNA
 <213> Homo sapien

<400> 63						
tttccaaagc	ggagacttcc	gacttccetta	caggatgagg	ctgggcattg	cctgggacag	60
cctatgtaag	gccatgtgcc	ccttgcccta	acaactcact	gcagtgtctt	tcatagacac	120
atcttgcagc	atctttctta	aggtatgct	tcagtttttc	tttgtaagcc	atcacaagcc	180
atagtggtag	gtttgccctt	tggtagagaa	ggtgagttaa	agctgggtgga	aaaggcttat	240
tgcattgcat	tcagagtaac	ctgtgtgcat	actctagaag	agtagggaaa	ataatgcttg	300
ttacaattcg	acctaatatg	tgcattgtaa	aataaatgcc	atatttcaaa	caaaacacgt	360
aattttttta	cagtatgttt	tattaccttt	tgatatctgt	tgttgcaatg	ttagtgtatg	420
tttaaaatgt	gatcgaaaat	ataatgcttc	taagaaggaa	cagtagtgga	atgaatgtct	480
aaaagatctt	tatgtgttta	tggctgcag	aaggattttt	gtgatgaaa	gggatttttt	540
gaaaaat						547

<210> 64
 <211> 528
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(528)
 <223> n = A,T,C or G

<400> 64
 cacctmctcc cscwggcgc ttwctcsgac gccttgccca scggggccgcc cgacccctcg 60
 srccatggac cccgctcgcc csctggggmt gtygatketg ctgcttttcc tgrckgaggc 120
 tgcactgggc gatgctgac argagccaac aggaaataac rccgagatct gkctcctgcc 180
 cctagactac kgaccctgcc kggccctact tytccgytac tactacgaca ggyacacgca 240
 gagctgccgc cwgttctctg rckggggctg crasggcaac rccaacwatt yctacacckg 300
 kgaggmttrc gackatgctw gstggargat agaaaaagtt cccaaasttt gccggctgma 360
 agtgaatgag gacnaccagg gtgaggggta cacagataag tatttcttta atctaakkwc 420
 catgacatgw gaaaaattct ttncgggtgg gngtcaccgg accggattga gaacangttt 480
 gcagatgang ctactgggat gggctcctgc rcacnaaaga aantatca 528

<210> 65
 <211> 547
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(547)
 <223> n = A,T,C or G

<400> 65
 kgaatgaasa acgaacgctg gaagtagaaa tagagcctgg ggtgagagac ggcattggagt 60
 acccctttat tggagaaggt gagcctcacg tggatgggga gcctggagat ttacggttcc 120
 gaatcaaagt tgtcaagcac ccaatatattg aaaggagagg agatgatttg tacacaaatg 180
 tgacagtctc attagttgag tcaactgggtg gctttgagat ggatattact cacttggatg 240
 gtcacaaggt acatatattcc cgggataaga tcaccaggcc aggagcgaag ctatggaaga 300
 aaggggaagg gtcceccaac ttgacaaca acaatatcaa gggctctttg ataatacatt 360
 ttgatgtgga ttttccaaaa gaacagttaa cagaggaagc gagagaangt atcaaacagc 420
 tactgaaaca agggtcagtg cagaaggat acaatggact gcaaggatat tgagagtga 480
 taaaattgga ctttggttaa aataaagtga ataagcgata tttattatct gcaagggttt 540
 ttttgtg 547

<210> 66
 <211> 535
 <212> DNA
 <213> Homo sapien

<400> 66
 ggggaggtct acgcttctag agcttgagcc agcggggcga ccctgcagtg gcaggactcg 60
 gcaccgcgcc ctccaccgcc gggttggtggc ctgcgtgaca gtttctctcc gtcgacatcg 120
 aaaggaagcc ggacgtgggc gggcagagag ctccatcgca gtaggaatgg cagccccatc 180
 tatgaaggaa agacaggtct gctggggggc ccgggatgag tactggaagt gtttagatga 240
 gaacttagag gatgcttctc aatgcaagaa gttaagaagc tctttcgaat caagttgtcc 300

ccaacagtgg	ataaaatatt	ttgataaaaag	aagagactac	ttaaaattca	aagaaaaatt	360
tgaagcagga	caatttgagc	cttcagaaac	aactgcaaaa	tcctaggctg	ttcataaaga	420
ttgaaagtat	tctttctgga	cattgaaaaa	gctccactga	ctatggaaca	gtaatagttt	480
gaatcatagt	gaacatcaat	acttggtccc	tatatacgac	acttgataat	taaga	535

<210> 67

<211> 527

<212> DNA

<213> Homo sapien

<400> 67

atctctgcca	cttaattcaa	acagtcatat	gcaggtcgct	taatttattt	gtgcttttgt	60
ttcatcttct	acaaggccct	cttagctcta	aaacttgaca	gtggaataag	gaaatgtttt	120
tccaaatctg	cattgcccgt	gagatcctca	acatcagcat	gttgagatgg	acctcaaccc	180
cacctctaac	cctgaaacac	actactcgat	attatcttag	gtatgtttta	gggtttagtt	240
tgtaaaataa	taatttattt	ttgaaggaaa	tataaaatat	taaagagtaa	taatagctat	300
cattttttta	gattcaatct	aaaacaatgg	actctttttt	ttccatttg	tgatgtagat	360
aagcaagaca	atcttgatca	tgagtgggtga	aaagaggatc	aaacttgact	attcttgcaa	420
tggcagtgca	gcaacaagcc	tttcatttac	attaaattat	aacttttcat	tcattcctaa	480
accaaactta	aaattctgct	ttcctttgag	tagaagggtat	ttaactt		527

<210> 68

<211> 431

<212> DNA

<213> Homo sapien

<400> 68

gggaaacttc	atgggtttcc	tcattctgtca	tgtcgatgat	tatatatgga	tacatttaca	60
aaaataaaaa	gcgggaattt	tcccttcgct	tgaatattat	ccctgtatat	tgcatgaatg	120
agagatttcc	catatttcca	tcagagtaat	aaatatactt	gctttaattc	ttaagcataa	180
gtaaacatga	tataaaaaata	tatgctgaat	tacttgtgaa	gaatgcattt	aaagctattt	240
taaatgtgtt	tttatttgta	agacattact	tattaagaaa	ttggttatta	tgcttactgt	300
tctaactctg	tggttaaagg	attcttaaga	atttgcaggt	actacagatt	ttcaaaactg	360
aatgagagaa	aattgtataa	ccatcctgct	gwtcctttag	tgcaatacaa	taaaactctg	420
aaattaaaaa	t					431

<210> 69

<211> 399

<212> DNA

<213> Homo sapien

<400> 69

gacacggcgg	acacacacaa	acacagaacc	acacagccag	tcccaggagc	ccagtaatgg	60
agagccccaa	aaagaagaac	cagcagctga	aagtcgggat	cctacacctg	ggcagcagac	120
agaagaagat	caggatacag	ctgagatccc	agtgcgcgac	atggaagggtg	atctgcaaga	180
gctgcatcag	tcaaacaccg	gggataaatc	tggattttggg	ttccggcgctc	aagggtgaaga	240
taatacctaa	agaggaacac	tgtaaaatgc	cagaagcagg	tgaagagcaa	ccacaagttt	300
aaatgaagac	aagctgaaac	aacgcaagct	ggttttatat	tagatatttg	acttaaaacta	360
tctcaataaa	gttttgcagc	tttcaccaar	aaaaaaaaa			399

<210> 70

<211> 479

<212> DNA

<213> Homo sapien

<400> 70

cgcgggcggag	ctgtgagcgg	gggactcggg	tccttgaggt	ctggattctt	tctccgctac	60
tgagacacgg	cggacacaca	caaacacaga	accacacagc	cagtcccagg	agcccagtaa	120
tggagagccc	caaaaagaag	aaccagcagc	tgaaagtcgg	gacccctacac	ctgggcagca	180
gacagaagaa	gacaggata	cagctgagat	cccaggtgct	gggaagggaa	atgcgcgaca	240
tggaaggctga	tctgcaagag	ctgcattcag	caaacacagg	ggataacgct	ggattctgggt	300
tccggcgtca	aggtgaagat	aatacctaaa	gaggaacact	gtaaaaatgcc	agaagcaggt	360
gaagagcaac	cacaagttaa	aatgaagaca	agctgaaaca	acgcaagctg	gttttatatt	420
aggatatttg	acttaacta	tctcaataaa	gttttgcagc	tttcaccaa	aaaaaaaaa	479

<210> 71

<211> 437

<212> DNA

<213> Homo sapien

<400> 71

ctcagcggct	gccaacagat	catgagccat	cagctcctct	ggggccagct	ataggacaac	60
agaactctca	ccaaaggacc	agacacagtg	rgcaccatgg	gacagtgtcg	gtcagccaac	120
gcagaggatg	ctcaggaatt	cagtgtgtg	gagagggcca	ttgagaccct	catcaagaac	180
tttcaccagc	actccgtgga	gggtgggaag	gagacgctga	ccccctctga	gctacgggac	240
ctgggtcacct	agcagctgcc	ccatctcatg	ccgagcaact	gtggcctgga	agagaaaatt	300
gccaacctgg	gcagctgcaa	tgactctaaa	ctggagtcca	ggagtctctg	ggagctgatt	360
ggagaagcgg	ccaagagtgt	gaagctggag	aggcctgtcc	gggggcactg	agaactccct	420
ctggaattct	tgggggg					437

<210> 72

<211> 561

<212> DNA

<213> Homo sapien

<400> 72

ggatgggtata	ctgtaaattc	agcatatgga	gataccatta	tcataccttg	ccgacttgac	60
gtacctcaga	atctcatgtt	tggcaaatgg	aaatatgaaa	agcccgatgg	ctccccagta	120
tttattgcct	tcagatcctc	tacaaagaaa	agtgtgcagt	acgacgatgt	accagaatac	180
aaagattagat	tgaacctctc	agaaaaactac	actttgtcta	tcagtaatgc	aaggatcagt	240
gatgaaaaga	gattttgtgtg	catgctagta	actgaggaca	acgtgtttga	ggcacctaca	300
atagtcaagg	tgttcaagca	accatctaaa	cctgaaattg	taagcaaagc	actgtttctc	360
gaaacagagc	agctaaaaaa	gttgggtgac	tgcatttcag	aagacagtta	tccagatggc	420
aatatcacat	ggtacaggaa	tggaaaagtg	ctacatcccc	ttgaaggagc	ggtggtcata	480
attttttaaaa	aggaaatgga	cccagtgact	cagctctata	ccatgacttc	cacctggag	540
tacaagacaa	ccaaggctga	c				561

<210> 73

<211> 916

<212> DNA

<213> Homo sapien

<400> 73

ggagaaaaata	aggtggagtc	ctacttgitt	aaaaaatatg	tatctaagaa	tgttctaggg	60
cactctggga	acctataaag	gcaggatatt	cgggccctcc	tcttcaggaa	tcttctgaa	120
gacatggccc	agtcgaaggc	ccaggatggc	ttttgtctgc	gccccgtggg	gtaggaggga	180
cagagagaca	gggagagtca	gcctccacat	tcagaggcat	cacaagtaat	ggcacaattc	240
ttcggatgac	tgcagaaaaat	agtgttttgt	agttcaacaa	ctcaagacga	agcttatctc	300
tgaggataag	ctcttttaaag	gcaaagcttt	atcttcatct	ctcatctttt	gtcctcctta	360
gcacaatgta	aaaaagaata	gtaatatcag	aacaggaagg	aggaatggct	tgctggggag	420

cccatccagg	acactgggag	cacatagaga	ttcacccatg	tttgttgaac	ttagagtcac	480
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tgtatacaac	atagcccca	atatagtaag	atctatacta	gataatccta	gatgaaatgt	600
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gaggggtctc	aagacattct	gcctacctat	tagcttttct	ttattttttt	aacttttttg	840
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tttaccatta	aaaaaa					916

<210> 74
 <211> 547
 <212> DNA
 <213> Homo sapien

<400> 74						
agtggcatta	acttttagaa	tttgggctgg	tgagattaat	tttttttaac	atcccagcta	60
gagatatggc	ctttaactga	cctaaagagg	tgtgtgtgta	tttaattttt	tcccgttctt	120
ttttcttcag	taaacccaac	aatagtctaa	ccttaaaaaa	tgagttgatg	tccttatagg	180
tcactacccc	taaataaacc	tgaagcaggt	gttttctctt	ggacatacta	aaaaatacct	240
aaaaggaagc	ttagatgggc	tgtgacacaa	aaaattcaat	tactgtcatc	taatgccagc	300
tgttaaaagt	gtggccactg	agcatttgat	tttataggaa	aaaatagtat	ttttgagaat	360
aacatagctg	tgctattgca	catctgttgg	aggacatccc	agatttgctt	atactcagtg	420
cctgtgatat	tgagtttaag	gatttgaggc	aggggttaatt	attaaacata	ttgcttctat	480
tcttgaaaaa	atagaagkgt	aaaatgttaa	taatacaaat	gtcactgtga	cctcctccac	540
tgagagg						547

<210> 75
 <211> 793
 <212> DNA
 <213> Homo sapien

<400> 75						
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gttctcagtg	aaaatccaaa	aaccagaaaa	aatgttttat	acaaccctaa	gtcaataaac	120
tgaccttga	aaattgtgag	agccaagttg	acttcaggaa	ctgaaacatc	agcacaaga	180
agcaatcatc	aaataattct	gaacacaaat	ttaatatttt	tttttctgaa	tgagaaacat	240
gagggaaatt	gtggagttag	cctcctgtgg	agttagcctc	ctgtggtaaa	ggaattgaag	300
aaaatataac	accttacacc	ctttttcatc	ttgacattaa	aagttctggc	taactttgga	360
atccattaga	gaaaaatcct	tgtcaccaga	ttcattacaa	ttcaaataca	agagttgtga	420
actgttatcc	cattgaaaag	accgagcctt	gtatgtatgt	tatggataca	taaaatgcac	480
gcaagccatt	atctctccat	gggaagctaa	gttataaaaa	taggtgcttg	gtgtacaaaa	540
ctttttatat	caaaaggctt	tgcacatttc	tatatgagtg	ggtttactgg	taaattatgt	600
tattttttac	aactaatttt	gtactctcag	aatgtttgtc	atatgcttct	tgcaatgcac	660
attttttaac	ctcaaacggt	tcaataaaac	cattttttcag	atataaagag	aattacttca	720
rattgagtaa	ttcagaaaaa	ctcaagattt	aagttaaaaa	gtgggttgga	cttggaaca	780
ggactttata	cct					793

<210> 76
 <211> 461
 <212> DNA
 <213> Homo sapien

<400> 76						
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tgaaacgaga	gcctaaatga	catctaagaa	aggcagtgtt	caataccagg	tattaggtga	120
ggatgggatt	ctaaggacat	cagtgggagg	cagggagcca	ccttcagacc	tcagcatgga	180
agcttccaag	atccagagga	agaggcaaca	gcactgagag	tcataggtag	aagaatcatc	240
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acaggggcat	ctgttggtg	aactcaacct	gaagccaaaag	agaagatgag	tggagagagg	360
caacatttat	agagctcagg	ttcttagggc	tgagagggga	ctctggggga	ccccccgggg	420
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<210> 77

<211> 642 <212> DNA

<213> Homo sapien

<400> 77

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gctgtgagac	tacctattgt	agatattgca	ccctatgaca	ttggtggtec	tgatcaagaa	120
tttgggtgtg	acgttggccc	tgtttgcttt	ttataaacca	aactctatct	gaaatcccaa	180
caaaaaaaaa	ttaactccat	atgtgttcc	cttgttctaa	tcttgtcaac	cagtgaaggt	240
gaccgacaaa	attccagtta	tttatttcca	aaatgtttgg	aaacagtata	atttgacaaa	300
gaaaaatgat	acttctcttt	ttttgctgtt	ccaccaaaata	caattcaaat	gctttttgtt	360
ttattttttt	accaattcca	atttcaaaat	gcttcaatgg	tgctataata	aataaacttc	420
aacactcttt	atgataacaa	aaaaaarawa	wattctttga	atcctagccc	atctgcagag	480
caatgactgt	gctcaccagt	aaaagataac	ctttctttct	gaaatagtca	aatacgaat	540
tagaaaagcc	ctccctattt	taactacctc	aactggtcag	aaacacagat	tgtattctat	600
gagtcccaga	agatgaaaaa	aattttatac	gttgataaaa	ct		642

<210> 78

<211> 519

<212> DNA

<213> Homo sapien

<400> 78

gcagaagaag	aagcggacct	tccgcaagtt	cacctaccgc	ggcgtggacc	tcgaccagct	60
gctggacatg	tcctacgagc	agctgatgca	gctgtacagt	gcgcgccagc	ggcggcggct	120
gaaccggggc	ctcgggcgga	agcagcactc	cctgctgaag	cgcctgcgca	aggccaagaa	180
ggaggcgccg	cccatggaga	agccgggaagt	ggtgaagacg	cacctgcggg	acatgatcat	240
cctaccgcag	atgggtggga	gcatgggtgg	cgtctacaac	ggcaagacct	tcaaccaggt	300
ggagatcaag	cccgagatga	tccggccacta	cctgggcgag	ttctccatca	cctacaagcc	360
cgtaaagcat	ggccggcccc	gcacgggggc	caccactctc	tcccgttcca	tccctctcaa	420
gtaatggctc	agctaataaa	aggcgcacat	gactccaaaa	aaaaaaaaaa	aagggcggcc	480
gccaccgcgg	gggagctcca	cttttgttcc	ctttaatga			519

<210> 79

<211> 526

<212> DNA

<213> Homo sapien

<400> 79

gtctggaggc	ggtgtcctct	ccgcccgtgc	gggtcctgga	tgagtacgag	ttatggtcac	60
ggtcacagcc	tgatctctta	tgtgttcata	gccattcgct	ctcccatcag	aactgtttgt	120
cctgaattgt	ttcctctagt	tctagaaaaat	gaccactaat	ttaaaaaact	cggttgtgag	180
gtttgcccag	aggcacttgt	tccagaattt	ccctcctgc	ttcagccatg	tccttgtcac	240
ttggcattct	aagctaaagc	tttagcttcc	caattcgtga	tgtgctaggc	caagattcgg	300
gagctgttgc	cagcctcgtc	aaatatggaa	gagaaacaac	ctgcgggtcaa	aagggaagtga	360
tttgtttaagt	ggtgcgcgtc	tatctcataa	ctagatgtac	caaccagggg	agggccaagg	420
atggaaaggg	gtaacttttg	tgcttccaaa	gtagctaagc	agaagtgggg	gagcagttta	480

gccagatgat ctttgattag gcaaacattg agttttaag aggctg

526

<210> 80
 <211> 281
 <212> DNA
 <213> Homo sapien

<400> 80
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 tagcaagtgg tgacactaaa taccattttg aaggctgatg tgtatataca tcattactgt 120
 ccgtagcaat gaaggatata gtactgtgtt gtgggtgagt gttgctattg cccagcatta 180
 atatttgggt gtgtatgttt gaggctatga aacacgcagg agtggttttg tgctattaat 240
 ttttaagagaa agcagctttt tcttaaaaatt cactgttgag a 281

<210> 81
 <211> 405
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(405)
 <223> n = A,T,C or G

<400> 81
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 aggagtltga statcgacat gtcattgctgc ccaaggacat akccaasctg gtccctaaaa 180
 cccatctgat gtctgaatct gaatggagga atcttggcng ttcagmagan tcagggatgg 240
 gtccattata tgatccatga nccagaacct cdcattctgc tgttccggcg scccacttac 300
 cccaanaaac caamgaaatg aaccttggct actacttttc aatcctcaaa kcttttcaca 360
 vhtgaccttc cttcctaaca ttctttmtga taaacattta ttaag 405

<210> 82
 <211> 547
 <212> DNA
 <213> Homo sapien

<400> 82
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 cttttacata atatagaaag atatgcatat atctagaagg tatgtggcat ttatttggat 180
 aaaattctca attcagagaa atcatctgat gtttctatag tcactttgcc agctcaaaag 240
 aaaacaatac cctatgtagt tgtggaagt tatgtctaata ttgtgtaact gatattaaac 300
 ctaaatgrtc tgctacctt gttggtataa agatattttg agcagactgt aaacaagaaa 360
 aaaaaaatca tgcattctta gcaaaattgc ctagtatgtt aatttgctca aaatacaatg 420
 tttgatttta tgcactttgt cgctattaac atcctttttt tcatgtagat ttcaataatt 480
 gagtaatttt agaagcatta ttttaggaat atatagtkgt cacagtaaat atcttgtttt 540
 ttctatg 547

<210> 83
 <211> 529
 <212> DNA
 <213> Homo sapien

<400> 83

ctatttctaag	agatgctctt	agtgatcttg	cattacactt	tctgaataaa	atgaagatca	60
tggtgattaa	ggatattgaa	agagaagaca	ttgaattcat	ttgtaagaca	attggaacca	120
agccagttgc	tcatattgac	caatttactg	ctgacatgct	gggttctgct	gagttagctg	180
aggaggtcaa	tttaaattgg	tctggcaaac	tgctcaagat	tacaggctgt	gccagccctg	240
gaaaaacagc	tacaattgct	gttcgggctt	ctacacactt	gggtgattga	gaagctgggg	300
gctccattca	tgatgcccta	tgtgttattc	gttgtttagt	gaagaagagg	gctcttattg	360
caggaggtgg	tgctccagaa	atagagttgg	ccctacgatt	aactgaatat	tcacgaacac	420
tgagtggat	ggaatcctac	tgcgttcgtg	cttttgcaga	tgctatggag	gtcattccat	480
ctacactagc	tgaaaatgcc	cggcctgaat	cccattttcta	cagtaacag		529

<210> 84

<211> 527

<212> DNA

<213> Homo sapien

<400> 84

cccacacca	gaatcccttc	atgggagggg	tggatgcctg	ttgaaactca	ctgacctatt	60
ggactgagc	tggggtggtg	tcttcatcag	agctatttga	agtcacccaa	aaggcttctg	120
acgaaagaac	aattttttaa	aagtcctctt	tttcaatcaa	gccaatgtcc	tatttttattt	180
ctaaaagtgt	tgggactcgt	gctgttatca	agtacaatga	aaatggcttt	ataaatagct	240
gttttgacat	tgtgatagaa	ggcttgaata	cggaggaaaag	atgtcgtctg	agctagtctt	300
gagttccgac	tgtccctgtg	gtgggaatcc	agtctgggaa	agcaggactg	ttttagcaaa	360
cgtgtactcg	ttctataaaa	atggaatctg	ttctgcaggt	taccgtccct	ccccgcccc	420
gcaccccttc	tgtcctgtct	ctctgctgct	gggacccagg	gcttttttcag	ctgcagaacc	480
cactggactt	ccaggaatca	aggaaaaagt	ggaaatgtcc	aactgtg		527

<210> 85

<211> 401

<212> DNA

<213> Homo sapien

<400> 85

cagtgtggtg	gaattcccaa	gatagaaatg	aaaaactctt	ttatagagtg	ctgacatctg	60
acattgagaa	attcatgcct	attgtttata	ctcccactgt	gggtctggct	tgccaacaat	120
atagtttgg	gtttcggaag	ccaagaggtc	tctttattac	tatccacgat	cgagggcata	180
ttgcttcagt	tctcaatgca	tggccagaag	atgtcatcaa	ggccattgtg	gtgactgatg	240
gagagcgtat	tcttggcttg	ggagaccttg	gctgtaatgg	aatgggcata	cctgtgggta	300
aattggctct	atatacagct	tgcggaggga	tgaatcctca	agaatgtctg	cctgtcattc	360
tggatgtggg	aaccgaaaat	gaggagttag	ttaaagatcc	a		401

<210> 86

<211> 547

<212> DNA

<213> Homo sapien

<400> 86

gaagcctctt	gtgtttgtgt	gcagagaagt	atatgatcca	ccatgcta	gacacttgcc	60
tttttttcca	ccattaaagg	tttaagaaca	tgtggaataa	gttttttagc	tgctaattgac	120
aaaacaaatc	ctgtaactac	ccagccagca	agtatatagc	acagaacact	gtgttacttt	180
acaagggtct	atgtgactgg	aataagggtg	tcccacttga	ctgttccaaa	gagcagcttc	240
tcagatcttc	agtgttcact	ggtaaatctt	taacagtgtg	tttgtgtaaa	gtttgtcatt	300
tcatactcca	tacactacag	ttgctgtcac	tgatccctgt	tttgctgggt	tttaagctac	360
ttgggtcaaaa	atcctgcttc	cttaaaaacat	agagaattaa	tgagcatctc	aagctttttc	420
ttttcctttt	taatgatgcc	tgcactatca	agagtattct	agtgttctct	ctttgttttg	480

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aatgcc 547

<210> 87
<211> 530
<212> DNA
<213> Homo sapien

<400> 87
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tttggcacct atgcgcctgc agaggttcct aaaagtaaa ctctagaggc cgtcaaattg 120
gcaatagaag ccgggttcca ccatattgat tctgcacatg tttacaataa tgaggagcag 180
gttggaactgg ccatccgaag caagattgca gatggcagtg tgaagagaga agacatattc 240
tacacttcaa agctttggag caattcccat cgaccagagt tggcccgacc agccttgga 300
aggctactga aaaatcttca attggactat gttgacctct atcttattca tttccagtg 360
tctgtaaaagc cagggtgagga agtgatccca aaagatgaaa atggaaaaat actatttgac 420
acagtggatc tctgtgccac rtgggaggcc atggagaagt gtaaagatgc aggattggcc 480
aagtcacatg ggggtgtccaa cttcaaccac aggtgtctgg agatgatcct 530

<210> 88
<211> 529
<212> DNA
<213> Homo sapien

<400> 88
acctgagcta agaaggataa ttgtcttttg gtaactaggt ctacaggttt acatttttct 60
gtgttacact caaggataaa ggcaaaatca attttgtaat ttgttttagaa gccagagttt 120
atcttttcta taagttttaca gcccttttct tatatatata gttattgcca cctttgtgaa 180
catggcaagg gactttttta caatttttat tttattttct agtaccagcc taggaattcg 240
gttagtactc atttgtattc actgtcactt tttctcatgt tctaattata aatgacaaa 300
atcaagattg ctcaaaaggg taaatgatag ccacagtatt gctccctaaa atatgcataa 360
agtagaaatt cactgccttc cctcctgtgc catgaccttg ggcacaggga agttctggtg 420
tcatagatat cccgttttgt gaggtagagc tgtgcattaa acttgacat gactggaacg 480
aagtatgagt gcaactcaaa tgtgttgaag atactgcagt catTTTTgt 529

<210> 89
<211> 547
<212> DNA
<213> Homo sapien

<400> 89
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cacacaagggt tatgattttt ttaattactg gcttctgatt tctttcactt ctgactcttt 120
tcctttttct cagatgtagc tgagtcctga tcattttaag acaacgatgg gtagaatttt 180
gagattaatg ttaattttcc ctttttggtt atttcagtc cctctcacta tgcctttgtc 240
cagaaggatc aagaattcta ccatcccttg ggtctttgtg tataaacaat gttaaataaa 300
ggtagactca gtctttaaga tattagacag tttttttagt ccatgggatt gtaaataata 360
acattaactt tcctataaga atattttggc tttgtaatct atagcctcaa attgggtatt 420
attatggatt cactagacaa acagctgttt ccttattgtc ttttttctt agtgtttctg 480
atttgcatac agtagctgtt tttaaagcca tccaaggaaa ataattattt acagtttttg 540
aagtcac 547

<210> 90
<211> 528
<212> DNA

<213> Homo sapien

<400> 90

gagcagcaga	agctgtacag	caagatgac	gtggggaacc	acaaggacag	gagccgctcc	60
tgagcctgcc	tccagctggc	tggggccacc	gtgcgggggtg	ccaacgggct	cagagctgga	120
gttgcctcctg	ccgctccccc	tgctgctccc	ttcccagct	ccggggctcc	ccggggctgct	180
ctggatccca	ggactccggc	tttcgccgag	ccgcagcggg	atccctgtgc	accgggcgca	240
gcctaccctt	ggtggtctaa	acggatgctg	ctgggtgttg	cgaccagga	cgagatgcct	300
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cgctgtgcgg	gctgagtgg	tggggagatg	tggccatggt	cttgtgctag	agatggcggt	420
acaagagtct	gttatgcaag	cccgtgtgcc	agggatgtgc	tgggggcggc	caccgcctct	480
ccaggaaagg	cacagctgag	gcactgtggc	tggcttcggc	ctcaacat		528

<210> 91

<211> 547

<212> DNA

<213> Homo sapien

<400> 91

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gacatataga	actttacaaa	catatgtcca	aggactctaa	attgagactc	ttccacatgt	120
acaatctcat	catactgaag	cctataatga	agaaaaagat	ctagaaactg	agttgtggag	180
ctgactctaa	tcaaatgtga	tgatttgaat	taraccmttt	ggscyttgra	ccttymtwrg	240
raaaawgrmc	cmaccttityt	taacmtgrac	cwcctymatc	tctagaagct	gggatggact	300
tactatyctk	gttwatat	taaatackga	aagggtgctat	gcttctgtta	ttattccaag	360
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ttcttctctat	aaaattcctt	aaaaataaag	atgggtttaat	cactaccatt	gtgaaaacat	480
aactgtttaga	cttcccgttt	ctgaaagaaa	gagcatcggt	ccaatgcttg	ttcactgttc	540
ctctgtc						547

<210> 92

<211> 527

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(527)

<223> n = A,T,C or G

<400> 92

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ttggggtaac	aggatgggta	cctgtcacgg	cctgtgcaaa	cataacatgt	gtcaccacac	120
tgaaggtatg	gtggaacaag	tggcctcacc	aaggctcggac	cccaatggac	tttttgcttc	180
ttgggagctt	atgggtctat	gaggacacag	tagcctttcc	tatcagcaaa	ctggagtggg	240
tgttgatatc	gggggtggcc	ttatgtacct	gctactgttc	tccccacatt	gcccagatgc	300
ctgtataact	gggaggcact	gkgctctcag	tttttgcgaa	tgtgatgagc	cccctgggtg	360
ttctaccctt	ttggcaatga	ctatccctgg	agncatgtgt	caaaactgta	aagcacaatt	420
tactgctctt	tgcggagcac	accgctcatg	ctctgaatta	cacctgaktg	tccttccctcc	480
wgktawtgaa	tgaggttgat	cnvatcagaa	adgtggkggt	ggcmata		527

<210> 93

<211> 531

<212> DNA

<213> Homo sapien

<400> 93

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ggcatcctga	taggcaccca	gcaatcattc	cggccaagat	tccttggtgt	ggctgaacaa	120
ttacacaatg	aagggtttcaa	gctgtttgcc	acggaagcca	catcagactg	gctcaacgcc	180
aacaatgtcc	ctgccacccc	agtggcatgg	ccgtctcaag	aaggacagaa	tcccagcctc	240
tcttccatca	gaaaattgat	tagagatggc	agcattgacc	tagtgattaa	ccttcccaac	300
aacaacacta	aattttgtcca	tgataattat	gtgattcgga	ggacagctgt	tgatagtggg	360
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cgcaaggtgg	actccaagag	tcttttccac	tacaggcagt	acagtgctgg	aaaagcagca	480
tagagatgca	gacaccccg	ccccattatt	aaatcaacct	gagccacatg	t	531

<210> 94

<211> 547

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(547)

<223> n = A,T,C or G

<400> 94

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gatgtgtctc	cattcctgga	aggtcttgaa	gaaagaccac	agagaaaggc	acagcctgct	180
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<212> DNA

<213> Homo sapien

<400> 95

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<210> 97
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<210> 98
<211> 547
<212> DNA
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BASECOT, W. C. 1964-1965.

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 <213> Homo sapien

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<210> 107
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<212> DNA

<213> Homo sapien

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<211> 291

<212> DNA

<213> Homo sapien

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<213> Homo sapien

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<212> DNA

<213> Homo sapien

<400> 110

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<211> 336

<212> DNA

<213> Homo sapien

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 <211> 218
 <212> DNA
 <213> Homo sapien

<400> 112
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 atgagattat cctggggaga tttagaagaa ttttgtgg 218

<210> 113
 <211> 533
 <212> DNA
 <213> Homo sapien

<400> 113
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<210> 115
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<212> DNA

<213> Homo sapien

<400> 115

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<210> 116

<211> 239

<212> DNA

<213> Homo sapien

<400> 116

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<210> 117

<211> 168

<212> DNA

<213> Homo sapien

<400> 117

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<210> 118

<211> 150

<212> DNA

<213> Homo sapien

<400> 118

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<210> 119

<211> 154

<212> DNA

<213> Homo sapien

<400> 119

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<210> 120

<211> 314

<212> DNA

<213> Homo sapien

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 <211> 601
 <212> DNA
 <213> Homo sapien

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<210> 123
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 <212> DNA
 <213> Homo sapien

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<210> 124

<211> 610
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<210> 125
 <211> 196
 <212> DNA
 <213> Homo sapien

<400> 125
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 <212> DNA
 <213> Homo sapien

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<210> 127
 <211> 590
 <212> DNA
 <213> Homo sapien

<400> 127
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<210> 128
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 <212> DNA
 <213> Homo sapien

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t						361

<210> 129
 <211> 546
 <212> DNA
 <213> Homo sapien

aaaaatacaa	attcagtaag	actttttgctc	taacaacaat	ttttcaaaac	gaatcaacaa	60
caaaaaagta	tcagtggttt	ctttttcttat	gaagatataa	taaaacacag	tattggtaag	120
cacattttta	cagtatgctt	ttcttttgta	gggaaaggag	atatggctat	gtctaacatc	180
gtgggatcca	atgtgtttga	tatgttgctc	cttgggtattc	catggtttat	taaaactgca	240
tttataaatg	gatcagctcc	tgcagaagta	aacagcagag	gactaactta	cataaccatc	300
tctctcaaca	tttcaattat	ttttcttttt	ttagcagttc	acttcaatgg	ctggaaacta	360
gacagaaagt	tgggaatagt	ctgcctatta	tcatacttgg	ggcttgctac	attatcagtt	420
ctatatgaac	ttgggaattat	tggaaataat	aaaataaggg	gctgtggagg	ttgatattat	480
taatagtgtt	atgcagaaaa	tatgaatggc	agggaggggc	agagagaaaa	atccatttct	540
tcattt						546

<210> 130
 <211> 733
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (733)
 <223> n = A,T,C or G

ggggcctctt	cctaaaggca	ctaattccat	ccaatagggc	ttaacctcat	gacttaatca	60
actttcaaa	acaccacatc	ctaattgccat	cacatcagaa	tttaggcttc	aacatatgaa	120
ttttgggggg	acacaaacat	tcacctcata	gcattcattg	ttctttgcta	ttggcaaaagc	180
caagactcac	attgtctaag	ttattttgact	tttgagtcgc	cagatgtgaa	aacagtgtcta	240
aacagtccag	cttcatgagt	ggagaacagc	atttgtgaca	accaccaaa	tacctctgtg	300
gtcagtgctc	tcaaccaggg	cacagcatca	tggaccagag	cctctgcagg	gcacagagga	360

```

gtggtgagga acaggggctc tggagcaacc ccacttccct ctgctttgta tatgggggggt 420
tctgcacatg actgcatttg aaaaggggctt cactgcgctt gctgaaggag tgcacttgag 480
ctagcggaga gttcccagag ggtgtctgga agaagcaaag gctattcttt gtttactca 540
gttatagatg gaagtcagac acttctgcct gaagtacttt cacacactcc acagtcttaa 600
gaaggatgga naaagcatgc caactactca naaaaccaca ggtgttcaag caatggatc 660
cttttatncc tacaactagt ggacaaagng gggcctctgt aatttgggaa agctaggaaa 720
actttttctg ggg 733

```

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<210> 131
<211> 305
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(305)
<223> n = A,T,C or G

```

```

<400> 131
aaacacatac gaatanttna actgtgatta tgaagtgaca gccggctaaa tatgtcttgt 60
attttctctc ttcccttttt tgctaactca tctttatttc cattcctgct tccatggtaa 120
tgcaggetca aataaattac taggatacaa gattacttca agcctctttt ctgtggaact 180
cataatatga taagcatttg ttacaagatt gcctgtagtt gtttagggga caaattatat 240
tagggaaaga aagtctttct ttagttggtt aaattttcta ttataattgg gtactaaatt 300
tattt 305

```

```

<210> 132
<211> 545
<212> DNA
<213> Homo sapien

```

```

<400> 132
aaacaatgct acactcattt ttggcaaagt gctgtattgt tcagtctgtg tacaaaactg 60
accatctatg aaccaatcag tataaaaaat ttctataaaa acaaaattta gacagcggct 120
caagaaaaca agctgccatt tatgcataga ttgatgtaca gtaacctaac caaatgtccc 180
ttttgaattt tcaagttact gaaaaaaaaat gtgtcgagaa acacattaag aaggcacatg 240
tacagtctac aatactcttc agtctcccta actcatgcc tgccccata aaggaaatat 300
gttcacaatt ttacttgaga aaaaaaaaca aagccactta aaaaaaaaaa aacacacacg 360
caattattaa agttcaaaat ctctggagga aaatacagc aaaaccactc atacactcca 420
agcctgaaac acacatctaa cctccccagg tactggtttg gttttcagag gtccacctag 480
aaaacaaatc taaaacttca ggcaaaacag agcaaaactg gacatttaac aattacacaa 540
ttttt 545

```

```

<210> 133
<211> 330
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(330)
<223> n = A,T,C or G

```

```

<400> 133
aatattttatt actaatatct tataatgttt tgtggnacca tggcatacct tgggtactat 60

```

tgtaacanat	agttcaggaa	accctactat	aagggtttatc	aaatgggtctc	ataaacagtt	120
acttattcaa	gcacgcaaaa	gctcagtgaa	aagtattttt	caccttact	ctttctcgtg	180
tcattcaaag	agaagttttg	atgtagtgta	tttatttgta	gggagtaatg	aacagatcca	240
tttcacagta	gactttgtgc	tctaggtgat	gcagctaatt	gccccagttt	ggaaaacatg	300
gacttgatg	aattgtcttt	tgtttgggac				330

<210> 134
 <211> 627
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(627)
 <223> n = A,T,C or G

<400> 134	
aaatattact	tcaaatatcat
cctgaactct	atttgaaaat
agtgccttct	tgggggtggg
ttcccaatgc	aatttgcata
taaattcatg	atattactaa
ctgcattaag	aacaaattat
tttctttaca	aaaagctgag
ttttaaagat	taacaaaagt
acatgcctga	gaatgtattt
cctgcaataa	aaatgcattc
tcaaaaagtg	cagcatccct
	aattcttt
	60
	120
	180
	240
	300
	360
	420
	480
	540
	600
	627

<210> 135
 <211> 277
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(277)
 <223> n = A,T,C or G

<400> 135	
aaaatcaaat	atattatttg
ccgttctatt	tactttcaaa
atttcaaaaag	ggaaaaggta
aaaattaata	tcacttaata
gaaacacaaa	acatcaattc
	cgcgtactc
	tgcgttg
	60
	120
	180
	240
	277

<210> 136
 <211> 486
 <212> DNA
 <213> Homo sapien

<400> 136	
aaaacagaat	gaattcattg
gaaccaaagc	cagggtcagc
ctgtattcct	tgggtcatgg
	cccctctctt
	catcatcaaa
	taatcagcat
	agctttatga
	60
	120
	180

cattggcagc	tctgattttg	ctctttttgcc	ttcctcttat	gtagaccctt	gtaattacat	240
tgggtacacc	cagataaccc	caaataatct	ccctatctca	agattcttaa	tgtaattata	300
ttgggaaagt	ccctttttgtc	atataagata	acatagcaat	ggattccaag	gattagtatg	360
tgagtttctt	ttgaggggct	ataattaacc	ctaccacaat	atggaaatgt	ctattgtttt	420
tctatgtacc	agaaataaga	cattaggtatg	tgaaattaat	aacataacac	cacttacggc	480
atcacc						486

<210> 137
 <211> 552
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(552)
 <223> n = A,T,C or G

ccatcttgca	tcaaatgttc	ttaaggcagt	gactggctat	caaccacagt	ttctgtctcc	60
ccagttgcaa	acacaggatc	catgcaacag	ttctgagacc	atacacttag	aaaccacagg	120
ggatgcggtat	caaatgcaga	actcccaaat	tataaaacag	tcaggctaca	ctcaaaacaa	180
aacatagaac	atcaacaaca	cacatctccc	aaaaaagaag	tgcaacgcat	gcttgtataa	240
accaacaata	acaaaaaaac	cacaataaaa	aatgcagagt	ctcccaaaca	agttttcaaa	300
tgtattgcan	aaagaaaaaa	aatgtatata	tatataaaat	taaaaagtct	gaaatactag	360
tgcatagtca	attacctaac	accaagtttc	ttttctttct	gtccaagctc	tactgcccct	420
ctgatactag	cagcatgtct	acaggctaag	accatagcag	caaaaaacgt	ttttcatttg	480
gcattttacaa	aattaaatta	ctgaataaaa	atataatttt	ttataaaaact	atttccttaca	540
gtaataatttt	tt					552

<210> 138
 <211> 231
 <212> DNA
 <213> Homo sapien

aaattttact	agtgttactt	aatgtatatt	ctaaaaagag	aatgcagtaa	ctaattgcct	60
aaatgtttga	tctctgtttg	tcattacttt	ttcaaaatat	ttttttctgt	aaagtataat	120
atataaaaact	tcttgcttaa	attgaatttc	tatattagtgt	gttaattgca	gtttattaaa	180
gggatcatta	tcagtaattt	catagcaact	gttctagtgt	tttgtgtttt	t	231

<210> 139
 <211> 535
 <212> DNA
 <213> Homo sapien

cagttgccaa	ccctctgaac	cgtttaggcc	ggttcatcgc	tgcccttgaa	tctgggcccgg	60
tgggtgatccg	gcaaggggtg	aaaccaaaga	gcgggggctg	tgaggccctt	cgcagtcctt	120
cgtaagtcgc	tgcatggag	tgaactatca	cgcacgtgt	ttatttcgtc	aacacgaaat	180
gtgatttatt	tttgcaatt	aacacggcag	ttctcggtta	cgttttcggga	aagcgtggga	240
tatgattctg	tctatcctgt	acggatatac	agtaattacc	gggaggggat	tccatggcga	300
agaagcaggc	ggcacgggca	gcacggcagg	aaatgagcgg	tatggcgcgc	ctcgggcttc	360
gcgtctcate	gatgattaat	cacccggtcg	cccagacgca	gcgctgggtt	acgattcatc	420
gcctggacac	ggatggggat	cgggagtggt	aagaggttct	gagcgtgac	gctgataccg	480
acgagctcga	gctgacgctc	aatgacgatg	gcagtgtgac	ggtgaggtgg	gagca	535

<210> 140
 <211> 640
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(640)
 <223> n = A,T,C or G

<400> 140
 acattgggtgg cacttgaact gagtgcacaa cacaacattc ttcagattgt ggatgtgtgt 60
 catgacgtag aaaaggatga aaaacttatt cgtctaattg aagagatcat gagtgagaag 120
 gagaataaaa ccattgtttt tgtggaaacc aaaagaagat gtgatgagct taccagaaaa 180
 atgaggagag atgggtggcc tggcatgggt atccatgggt acaagagtca acaagagcgt 240
 gactgggttc taaatgaatt caaacatgga aaagctccta ttctgattgc tacagatgtg 300
 gctccagag ggctaggtta gtacaaactc gcattcatgg cttgggtttcc cagaagatct 360
 ccatttaact tttttaaaga aagttttattg ctttctttta cctgcatttt ttctaagttt 420
 tttttcgcat aaaggtgctg tctttgtggc aaggcctagg catgacaatc ggaggactcg 480
 agggggatgg aggactagtg atccggctgg ctgcttccag tcgattagag aggtgaaaaa 540
 gctgaacgtg tgcccantna atcttcaaaa aggcagaaac atatcacctt ntgccccnt 600
 aaacttggtc tttttccgaa ggggaaaaaa aaaatggaaa 640

<210> 141
 <211> 127
 <212> DNA
 <213> Homo sapien

<400> 141
 aaaaatcaca cactgacaac acagaaatac gaaatgctag gaaaagtcta gcatatgaag 60
 gaaaaacatg tcttatgcac tctaatataa ttttttcaat tagtataaag gcaaatgcgg 120
 ttttttt 127

<210> 142
 <211> 126
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(126)
 <223> n = A,T,C or G

<400> 142
 aaatactctc tggatgcntt caagtaatac taatcatttc atgnngnaaaa gtcttttaaat 60
 aaacaaattc agagtataat taattgaaat atttataata catttgttac acagttattt 120
 ccaata 126

<210> 143
 <211> 730
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(730)
 <223> n = A,T,C or G

<400> 143
 gcaagttctg gagtgttca tcttgagcct gaattccctc ccttgcaaaa tgggggaata 60
 ccttcctcag agggctcctg cgagggtgag gggagatcag catggcaggt gtgctgggca 120
 cggcagggcc tgggaagggc agatccttcc cccatccctg ccacaaacaa cccaaacctt 180
 taaaggagag caatggcctt ggtgcacaaa caaaaacaa acaaaacctt gtcttaggag 240
 actggggccc taatttctaa tagcaagcct ttatgagtc ctaacactct actgggctga 300
 gtatctcaca cgccagagga taacctgcct tctgctcacc accacccctg agtagttgtc 360
 attgtgtcca ttccacagat gaggcaaaagg ctgagaagag tcatgtgtta aaccagcttc 420
 tagagcccat gcaggagctg cagggtggggg gaatcacctc taggtgctct tcccatggaa 480
 tccctccctc ccttgagtg tcaactcact anctttccaa tgggtgtgtg acctttgacc 540
 agctttcttt ccttntctgg gctcagttt cccaccttgg acaaagtaag aggtctcttg 600
 ggnttcangg tagttcttcc taacttcttt tcttttccat ttgagcatcc ttcttcattt 660
 tttgccacct ctcttgctat tacancttt taccttcggc cgcgaaccac gcttaagggc 720
 naaattttca 730

<210> 144
 <211> 485
 <212> DNA
 <213> Homo sapien

<400> 144
 ctggctcagaa atgattctct tgtgacacca tgcacacac aggcctcgggt ctgtcctccc 60
 catatgttacc ctgaagatgg agctaccttt cctctgtgtg gcattttctg cttatccag 120
 tcttctactc gtagggcata ccagcagatc ttggatgtgc tggatgaaaa tcacctgtgt 180
 tgcgtgggtg gtctgctgcc gccacttcta atcctcatca tgacaacgtc aggtatggca 240
 ttccaaatat agatacaacc attgaaggaa cgtcagatga cctgactgtt gtagatgcag 300
 cttcactaag acgacagata atcaaaactaa atagacgtct gcaacttctg gaagaggaga 360
 acaaagaacg tgctaaaaga gaaatggtca tgtattcaat tactgtagct ttctggctgc 420
 ttaatagctg gctctggttt cgcgcctaga ggtaacatca gccctcaaaa atattgtctc 480
 aacag 485

<210> 145
 <211> 465
 <212> DNA
 <213> Homo sapien

<400> 145
 ccaagacagc tcgtttctgg agagtatgag ggtgtgtttt cttattgtga aaggaactac 60
 cttctcttag agggtaggaa gaatgtggtg tgtgtgtgtc tcataaagca accggacatt 120
 ataggtgcc aggtcatcta taaaaacgat ccttgggctg tgtaaaaaatg aagtggcttt 180
 tcagtatcct ctttcacact tgctgcttcg ggagactatg caatgatggg aaggtgattg 240
 cccctttatt tcattcagtg ccatggctcc tgtgtgtgta gtaatttatt tgtttagttc 300
 attttttttt tcttaacagt caaggggaag agtgattcct cacactgctt tcaagctgga 360
 ctgagccagt ctcatcttgg gaaagaaatg ctgtgtccag aactcagcag ctccatctat 420
 tttttccagt cgaaagaaac tgatcttttag gcagttttta cttgg 465

<210> 146
 <211> 351
 <212> DNA
 <213> Homo sapien

<400> 146

ccagccgggg	taatctgtat	gtggcggact	tgagctacga	cgtgggcggc	aagtgcctgt	60
ttgaccagat	cagcggcgtg	aagcttatgc	caactcatcg	tttgataaat	ccgaggatca	120
gttcaagacg	tcgcagcggg	tgattttggg	aacgtcgttt	tcggtcagta	aattgtgggt	180
agcgacggag	tggttgatcg	gcaagaatga	tccgtatatt	ggcgggagca	gctataccga	240
gagcttgggg	gctggggggg	gtaaccagcg	ggagaattcg	ttatataatga	acattgggta	300
ctacttctga	cttaagatct	ccagcgtttt	aactggcctt	atcgcaggca	a	351

<210> 147

<211> 654

<212> DNA

<213> Homo sapien

<400> 147

acttattttt	aattactgaa	tattttcttag	acgtttttggg	acagatttta	tgtaatcttt	60
ataagtatga	tttctgaaga	aaagcaaatg	cattagtatg	tttgccctaa	acttgtagac	120
taaaccaagt	attgtaaaat	aaacagcgat	aacagtgata	gttttttaact	ctatggtcac	180
tgtatcactc	tggaatatgt	ggagtagctg	taataaatct	actcctgtat	tatgctttac	240
agtgcaggtc	ttagtttttc	ttttttctca	tttcttttga	aatggcatct	cgaacaaagt	300
ccaccaatcc	ctttacaaaa	gaatgaactg	ctcctctgtg	tgtacttcat	agaaggtgga	360
atcggacaga	ccgaggttag	tgacagttat	tcttgaaata	caggagcaga	gtacagtcg	420
ttgtggtttc	cgggattccg	cgcctagctc	agccaattaa	gcattgagaca	tagggcattg	480
agccacttag	tagttatgcg	agtggataga	ttggtatgta	agagggaaag	aggtctgctg	540
taaagaacaa	cacttgtttg	tctgtgggga	aagaaaagca	gaatcttgag	atgaaagttg	600
gcatacaaat	aggatactat	cgccagtagg	ttatattaca	aaacatttat	cggg	654

<210> 148

<211> 539

<212> DNA

<213> Homo sapien

<400> 148

tgaatatcat	gagggtgatt	ttcacctgat	tgcaaaaactg	ccatagtttg	aaacactttt	60
tcaatttacc	agacacactc	tgtcaagact	tcataacttt	ccaacttgca	agcctgtgtt	120
ttgccttttc	caacctaaaa	aggaaaagct	ttaaacgatg	aacttacatt	ctattaaacc	180
atcagacttg	agcttatcca	tctgttttag	gtgaatgtac	aaaccaggta	catttccacc	240
aaacacatag	aaaaatcttg	tgcatacag	ttcagctaag	ggtagtagga	caatccttac	300
aatcctcctt	ggattttctt	tttaagatgt	caaagaagca	ggtaaagcaac	attgttcatt	360
tgttactggg	tgttctagat	caaaccttca	caagctatat	atatagcttc	atatgctata	420
gcttacaat	ggggtaacaa	agtaaaagaa	aagaacaaat	tatactttga	cactttatag	480
tcaaagtata	attaaaaaag	aaatcctaca	gtgggtaatg	gagaaataga	taatttttc	539

<210> 149

<211> 273

<212> DNA

<213> Homo sapien

<400> 149

tttttgggtc	ttctcctcaa	ggagccgctg	gatagtagtc	ttgattgact	ttcaccttgc	60
ccctcatata	gtccgggtact	aaggccaccg	acatcccag	gaacctccgg	aaccacgacc	120
gccaagcaac	tcgacccacg	ataggtgggg	cctacgctct	cgaagttgat	tggatgctcc	180
cgcttacagg	gcgggggtaca	gaagggacgt	catttgtgac	tggacgcgca	agagctatac	240
tcagcagctt	tcctctgtcc	cagcccctag	aac			273

<210> 150

<211> 200
 <212> DNA
 <213> Homo sapien

<400> 150
 gtttttacta ccgtatggcc catTTaaaag ggatgtgtac gccttacact ataaccctta 60
 aaccacctag aaatatgaaa ctcaaactgc cactgacctc cctcaccaag ctccataaaa 120
 gtaaaaaatt ataacaaacc ttattaacca aactgaacga acatatgggc gattgattca 180
 ttgccccac aatcctaggg 200

<210> 151
 <211> 515
 <212> DNA
 <213> Homo sapien

<400> 151
 ctgtagcgat ctttaagaat atTTtatata tgaaatctgg atttaggggt cccatgggtc 60
 ggcaccactg ggtacagtag ttctacatgg cagtaattca ttggagttga agcagtgagg 120
 aaagagtcaa gtactagtct ttatcctca gtgtccagtg actgtcaaga gaaatgggac 180
 tgccttctgc attgggatat gtgggttaaa gagtagtcca atatagaaga gtgagaaagt 240
 gmaccctctg aggcatagta atgttttatt kraaaacatc tcacatgtat tgaatactta 300
 sataggatgt attctgtatt actgaatttt ccagattatt gaagcaatca cctttctgtg 360
 tttaaagttt tagaaagaat gcttttaaaa atgcttaaca taagataagc ctgttttcat 420
 ggtgcaaggt cctttctatg aacatgaatc actggactct gagggttggg ctaagatcac 480
 atctacatcc cttttaaatg actagtgtgc tcaga 515

<210> 152
 <211> 243
 <212> DNA
 <213> Homo sapien

<400> 152
 atttcaacaa catacttgtc gaggtagtta taaatcttct tagggggagg tgggtggtttc 60
 tgttggaatg ccaattttac agcttctgct gctgattcag gttctttaat tatgcttttc 120
 tttgagtctg cttcagatag cacaacaaaa aatgatgac acttttcaca cttgacaaaa 180
 cgggtggatg atacaaaagg tctctacatg tgtgcacaag tcgccacatt taggacagcg 240
 cag 243

<210> 153
 <211> 620
 <212> DNA
 <213> Homo sapien

<400> 153
 ttgtcttctc taccttacca tagccagttg ctttcatttt aaaccagagc aagtaacata 60
 ttagtgactt gaatcttcat aagttaaagt aaaaaacagc aaaaaaccta gatctttgtc 120
 ttttagaaca cagaccattt tcaggaaagc agttagctaa gtgtttaatt catgaatatt 180
 gtatactgca tcccctacca caatttacac aatcctgtgg atagtctac ctccacctgg 240
 tcaacctaca tgatccttaa gctaattggc gatcacgatg accttgtaga catgcacaca 300
 actatacctt tgtccaacag atcataatat atctgctatc caactggttt tacctgccta 360
 atcctactga tttgggcact gcttgtatag tctctcaagt tcacaggaaa tgttgatttt 420
 ctaaggctct catttttaca gagtatacag gcaaagtgc aggggaaaag gaattagtct 480
 aagagtaagg ggatgattat tatattgagg ctaaaaccac aaagtggctc aggcctttaa 540
 aaaaaacact gtggataatg acaaaaagca taagtaaaaa tattttgaga aaaataaagt 600
 acaagttttg aacaccccc 620

<210> 154
 <211> 843
 <212> DNA
 <213> Homo sapien

<400> 154
 cattgttagt gacccaagta aattttatagt ttttaagttc agaggaaaaa taaagcctat 60
 tttttgttaa cagtctttat aaataataaa atggaataaa gaaacaaaaa aaaaaagaaa 120
 aagtttgtat gaaaattcat ccttattttt ttatttttgg ctaagtagtc aaattttctac 180
 tatattaata ttatgtatgc gacacccatt taaattcact ctctttgata gaaagggtgag 240
 ttgattatca cactgtctat tttttcactg ccaaaragac tgcaataacc tccctccatc 300
 accctcaaaa aacaaacaga aaccatctga ggcataagcca ttgtttacat attgtgtttg 360
 tgtgcacctt totacaaggt tctttctctt aaggagttta tctgccataa ttttcggctt 420
 cagcagcagc gctctctctt acagactaag agaaggatct acagaaaagt catctgatta 480
 aggtttttggg tcaaatataa actctcttga cagaatcctc tttccttcac ttggattttc 540
 gcaaacagaa agcagattat tctcctggca caatagcgac tctagaaacg cttatgtttt 600
 tcagactttg gcagaacttg ttaagaacag catcatcata atacatttgt acaaaactga 660
 atttcagtgg ctctttttgt ccacatgatg catgatgaaa tttataaagg tctgttttac 720
 cccacacagg tcatctcttt tgtgttctta cagagccaat aggttctatt taagtcacag 780
 ttattatatt aaccatcctt ttcactagac tagagaactt ctttttcatg gtccatctcg 840
 tga 843

<210> 155
 <211> 674
 <212> DNA
 <213> Homo sapien

<400> 155
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 caattcatat cctttaggga aaaaagagga tcaattcatc actcaatatt taatacagcc 120
 aaaatgagct gcaaaaacaa gcacacacac aaatactgtg aacagaaaaa tacaagaaaa 180
 tgactaagct gggagtcttg acgggggtatg gacattgctt aaagcactta tcagtcccca 240
 gaaaaaccaa accaaaaaca ttttttacga tggcatggcc tcatggcccc ctttaaaact 300
 gttgatggtg acaaagggca ggggggtggg agagaaaaca caatcactgc tccctttttg 360
 ctgcgcagtg tgactgcacc cctcacggca ccggcatgta cacaactacc acacaaggag 420
 gaccaagtc cctctgctgt ggctccttaa aaggcaaggc ttgagttttg gctgatgagc 480
 aagttctctc cgttaccaat cctgccaac cagcactacc atggctgaat tgatctaccg 540
 ttttcttgag taaactgtaa ctggctacag tttcggtaac atggaaaaga actcagctac 600
 tacagccaac tgcaatactt caggaacccc ctccatccct ggggctctc actcctagtg 660
 catcttgatt ggat 674

<210> 156
 <211> 671
 <212> DNA
 <213> Homo sapien

<400> 156
 cctttagtga acacctttat ctccatgtcc ctcttagagc ccagagagct gcccataggc 60
 attttccaga attctcatg tcacctagtt caatttccat taactcagat cagccattgt 120
 gattccaccat ttgtcaggct ctcaggttta acaaaacctt ctatcaccat catccttcaa 180
 cagccacagt ctgaattgag ccaacatttt tttttctttg agaaagaagt gggctggggc 240
 acaactttta gtctgagggg agctagtagt cggcttgaca attaaagcca tccataacaa 300
 cttttcttca aatgtgttga ctctcaggg gctaaactgc tcttagctta gaattatgct 360
 ttactagaga tctaccatat aagtgggtta atcactacca tctgttaact agttatatag 420

cttccagaca	tgaggagac	atcaaacagg	gatggaagca	accccaagga	tatgcaagaa	480
gggcatgatg	aacccccctc	cctctggcag	gagaacaagg	ccaaccaagg	gacagactgg	540
aaagcactta	gatgtttaag	gaggagaaag	gggaagcttt	gaccagtcct	tgccctttgc	600
caagttcagc	cagttctccg	ctgcttgcaa	cctctagcgc	agtaacattt	tgccagaattg	660
cagattttcc	c					671

<210> 157

<211> 474

<212> DNA

<213> Homo sapien

<400> 157

cgcggttcttt	aattcttttaa	gcctagaaaag	tccttttacac	tacttaccta	aagggtcccaa	60
agtaaaaacac	acactagtag	taaggctagt	gcatttccct	tctagcactc	aaagaaagct	120
taacattttt	gacagtttgc	aaataccgcc	ttgtatttct	gattcagcct	tattcaaagt	180
atcataataa	aatattttatt	aaatstatgt	tgatctgcgt	gcatttatga	tctccagatt	240
aacgttaggc	ttctctgttg	ggccctaact	tggaggtgct	tttttggatc	cctcctcccc	300
tgattcattg	taatttcatt	tcctttgtca	tggctctgac	cagagaagat	tctaaatatc	360
tgcccccaaa	gccaaaatta	tatcttttga	aaagtgaat	gaagagttga	gtcastaatt	420
tatttttagat	attactgcct	aaaacaattc	cccaaaattt	atggaagttg	gagg	474

<210> 158

<211> 584

<212> DNA

<213> Homo sapien

<400> 158

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agtgccaaag	ttagtcaatt	taccctacct	ggaatactat	atacaactct	gggtctcatg	120
tgtgttaaaa	tacatacagt	gaagctgagg	aagagccact	gaagtaaaaa	gtattgttta	180
caagttggaa	aggatgtaaa	aataatctaa	agtatactaa	gtcaggaata	aaaggcagag	240
ttaataaaa	tgtggctggg	actgatagac	gaaacagata	tattttctaa	atcctggaat	300
aattattaaa	aaattttaca	tgtatcaatg	gattccagac	tccatatttt	aagtttcaca	360
actactgtca	tttaaaacta	taccttattg	aacgtctccc	actctcaata	aattacccca	420
aatcactctt	ctccaaaacg	taaatttggg	acacactgac	ttacaaattt	tgggcttaat	480
ttataggatg	ttgtggccct	caaaaatata	attgtgggct	aaacaaaata	aattcttgaa	540
acaattctaa	aaatcaatca	ttgtccaaaa	tgaacttttt	ctaa		584

<210> 159

<211> 671

<212> DNA

<213> Homo sapien

<400> 159

cctaattttta	ttacttttct	tgccactgct	attattgata	gaaatacaat	taaataatta	60
agatgaacca	atccattgga	agattactaa	aattgtatct	tcccaatgcc	tcctacagta	120
agattttctt	ataattataa	cccttggaga	caatttgaac	tttattttaa	tgttctgctc	180
aaatctaaat	ttccttctcc	taggctgaag	cctgatctaa	ataaggaagt	agttgggata	240
tatccacagg	ctgtcgaaca	tggagctgca	tctgagagac	aggtggcagc	aacccaaaagc	300
aaagcagggg	ctgagaacag	gcagggtcca	agagcaaaat	ggaacttgaa	agccaagtat	360
ggttcactgt	aaaggagaaa	atatagaaat	acggaactag	aacacctggt	ctgggatgtg	420
gtaagcacc	aaaatatagg	aaaactgtat	gaattcttgt	gaagcagtaa	actatgatag	480
taatcatgtg	acacatatga	taacaaactc	aaaacagggg	aaagaggggc	tttattcaat	540
gctggagata	agtgaaaaaa	aaagtgaagt	gtctcaagga	cagaagttat	catctcaaaa	600
agggcatatca	gctagatctc	gcggaaacca	tatgattatc	ataattctag	actctgttcg	660

gtattacaaa g

671

<210> 160

<211> 315

<212> DNA

<213> Homo sapien

<400> 160

ccagagaggg	agggtcttgc	ttcaccacag	ggcaccagaa	gaggactggt	gcgcgggaag	60
accaggtaat	cataatgcta	ttaaaaatag	cagtaatcat	actgttttat	acattgtata	120
atgtcataag	gatttttaact	ttcatgtaac	ataattgctg	taaaagtttc	cccagtttgt	180
tttgtgctat	ttaccctggt	gttaaaatgt	gtaagaattt	acatttttagg	tatgttaggt	240
ttattccctt	ttatatggtt	tctgtttgaa	attttgattt	tagaagacat	tcattctcaa	300
ggtcataaaa	cacac					315

<210> 161

<211> 607

<212> DNA

<213> Homo sapien

<400> 161

tttytggtgc	accttggata	attgcttaac	ttttaaatt	tacgttccct	catttccaaa	60
aagggtattat	aactcactgt	tattttgata	attgagataa	atgtacgtac	aagtgtttg	120
aaactgtaaa	gtgcattata	aacagagggga	tttaccatag	aggttctacc	ttgatgtatc	180
aagagaagcc	ttttctggaa	tctggtgcag	ccttgtgaga	tgctgttagg	taaggggact	240
ccttggtaga	atttcttaca	tttgtgtaaa	aagttctggt	tcctgagtaa	ttccaaagaa	300
gatgctatga	ggagttcact	gtgcctttga	tttgatccca	atgggtcaga	atatgttttc	360
tcattcagta	ggctactaca	ggatttgaag	tagaaaaaac	aggggtccagt	gaccttcacg	420
ggatcctaga	tggtcatgaa	tttcaatcat	ttgagattgt	gggggtgtgt	ccaatgctgc	480
tctcaaaaag	atgttgccct	tcttcasaga	gcattaataa	ctaaaaaatc	ccctgggtccc	540
aaattttattg	tgtgtmtctg	aaggctttta	ctgaagaaat	gaaawgcaca	ctcatggaac	600
aaactaa						607

<210> 162

<211> 443

<212> DNA

<213> Homo sapien

<400> 162

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catcactaaa	gtctcttgaa	aggcatttct	gtattgggca	agatttaaaa	tactaaagcc	120
ttaggtccta	ttcatattta	aagtagcatg	tttgtaacct	gttactatct	ggagagagaa	180
gcagttgcct	gccacaattg	aagactacct	ttcaaatagc	aaaagagaga	gagaaggctg	240
atatttcggg	cttttaataa	aagatttgtg	tggttctgct	tttactgtaa	ctgtcacttt	300
cccagtgaaa	atgatttcat	atacatttga	gggtcttaca	sgtatgggta	aagttctata	360
aattgcaaca	aatgataacc	caatttcatt	ttatcccttt	tgtattgtga	aactggaaac	420
tttatgacat	tgtaatttat	cag				443

<210> 163

<211> 686

<212> DNA

<213> Homo sapien

<400> 163

caggcaaatt	atagtcaaatt	acatcacccc	cctcaggcat	ctgtggcaag	gcacccctct	60
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agagaacaac	taattgatta	cttgatgctg	aaagtggccc	accagcctcc	atatacacag	120
ccccattgtt	ctcctagaca	aggccatgaa	ctggcaaaac	aagagattcg	agtgagggtt	180
gaaaaggatc	ccagaacttg	gatttagcat	atcagggtgt	gtcgggggta	gaggaaaccc	240
attcagacct	gatgatgatg	taagttagct	ttgtatattc	ttgaaacacc	tataaagtgt	300
tattttaccg	ttgaatactt	aaatgtaagt	gaaaatctaa	tagatgttta	tgtaaatcta	360
ggtagacatc	acctggattc	cccactctat	tgcttacctt	tttgttttgt	aatttgatca	420
gttcaagtta	aaacaattta	acaaaaaact	atgaatgttt	atgatataat	gaaatgattg	480
tttaactttc	tattgctttt	tcacacacct	ataaaaagtaa	ttttattact	cccaagagaa	540
atcactaaag	gcagaattac	tagagggtaaa	aataactagg	gttgggtacag	tattactcag	600
gagaagtcaa	ggggagaaaa	cttgccccaa	tgattcaaaa	taattttggc	atgggggggg	660
ggaggggaaa	aaatttggtc	tccttt				686

<210> 164

<211> 706

<212> DNA

<213> Homo sapien

<400> 164

ttttttttgt	ttcatttgtc	gcttaaaata	aaaattataa	attagattta	aatggagcac	60
taattataaa	acagattgca	agtaccacca	tttgaaaaaa	aaaaaaaaaa	tcagtggatt	120
tccataacac	agaaaatgca	tggaatgca	tctacagtag	agttaaaaat	ttcctgtgac	180
taaaaaatta	aaaactggaa	tcaccagtag	caaagtata	gtcaatggct	atgacaagaa	240
cagatcctgc	cgagctcata	aatgcaatta	ttggcttttt	tgctttataa	aaaagacatt	300
acataattta	ttgcattatt	ctcctaataa	aaaacatact	accacgtagc	tctccccatc	360
ccattctctt	gcttcagat	ttttatagaa	aataactgtt	ttagtctggc	cttggaaaagt	420
gaaccaccca	gcaccacctt	cacctactca	ctcttcaatt	caatatgcac	atagcaaaag	480
ccaacacttc	aatctctctg	cccacatcaa	aaaaagtagt	ttcaggagaa	aaacattaat	540
accagttgaa	taaaaataag	ggcataaaaag	ctatgagaga	gatagctctg	ccatctgtct	600
ctgggctaaa	aatcaaggct	aactattgcc	tttggcacca	caaggttcaa	ggtccatggt	660
tttattagaa	aagtcctcac	aaaaaaatta	aacccccctc	acccca		706

<210> 165

<211> 427

<212> DNA

<213> Homo sapien

<400> 165

tyywgggcaa	ttaggcagga	gaaggaaata	aagggtattc	aattaggaaa	agagggaagtc	60
aaattgtccc	tgtttgcaga	cgacatgatt	gtatatctag	aaaaccccat	tgtctcagcc	120
caaaatctcc	ttaagctgat	aagcaacttc	agcaamgtct	caggatacaa	aatcaatgta	180
caaaaatcac	aagcattctt	atacaccaat	aacagacaaa	cagagagcca	aaatcatgag	240
tgaactccca	ttcacaactg	cttcaaagag	aataaaaatac	ctaggaatcc	aacttacaag	300
ggatgtgaag	gacctcttca	aggagaacta	caaaccactg	ctcaaggaaa	taaaagagga	360
tacaaacaaa	tggaagaaca	ttccatgctc	atgggtagga	agaatcaata	tggtgaaaat	420
ggaaaaa						427

<210> 166

<211> 124

<212> DNA

<213> Homo sapien

<400> 166

accatgtttt	cgttgtgtgt	gagcagggaa	gggaactttc	ctgccttatt	taaacctggg	60
ccgaggattc	gtggaatctg	cttgatcaga	gactctgagg	ccaaaaacgc	atcatacttc	120
ttgg						124

<210> 167
 <211> 232
 <212> DNA
 <213> Homo sapien

<400> 167
 tctgcatagc aaatatgatt taagaattta acatcattat ttgatcacia gcgtaaatat 60
 gtcaccataa ataaatgtaa attcattgta caaaaattcc caacaactct taatacaaat 120
 atggtacatt tgacagtttc tgaaacagat tattttttaa acttttttaa acctaagctt 180
 tatttttttc ctggttatta gacacacaca aaaaaataa aaagaggctg gg 232

<210> 168
 <211> 677
 <212> DNA
 <213> Homo sapien

<400> 168
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 atgcatttgc cactttattg ctttttttaa atctttattc tatagtgaat tgggtattccc 120
 aatctgccta agcaaaggca tgcccttcta acaagatttg cttagagcag aggtgataga 180
 aggaagaatc cgaagacctt ctggcatggc aatctgggag cagcacattg ttgatggagt 240
 ccaagtgagc acatttcaca caattcatat agtgacaagt gggcttgctc cctttttcatc 300
 caggaaaaaa actactcaca gacctctgcc cagaatctgg aataagaacc ctcatTTTTaa 360
 ggtattcttc ccaacaaata aatatctaaa tattgaaagg gggcatatca gaaaacttaa 420
 aagacacaat aacaaaaacc aaaacctctt tcaaaacaag taagcaatgt ctgtatttag 480
 ttcactctaa aacattctta gcttttcttg cagtttgctc ctaaaagatt tgattgggca 540
 caagaggaac gaaattatta ataaaaataa agcttatatt tgtttttgcg gtggataatc 600
 ggtacaaaac gtttccagat ctgagactta aatggatctt ttaaggtgaa aaggagaatg 660
 ccaggttcta ctgaaat 677

<210> 169
 <211> 635
 <212> DNA
 <213> Homo sapien

<400> 169
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 gacgcacatt ttgtactgg cacatattct tagacgacca attatagttt atggagtaaa 120
 atattacaag agtttccggg gagaaacttt aggatatact cggtttcaag gtgtttatct 180
 gcctttgttg tgggaacaga gtttttgttg gaaaagtccg attgctctgg gttatacgag 240
 gggccacttc tctgcttttg ttgccatgga aaatgatggc tatggcaacc gaggtgctgg 300
 tgctaattct aataccgatg atgatgtcac catcacattt ttgcctctgg ttgacagtga 360
 aaggaagcta ctccatgtgc acttcttttc tgctcaggag ctaggtaatg aggaacagca 420
 agaaaaactg ctccagggagt ggctggactg ctgtgtgacg gaggggggag ttctggttgc 480
 catgcagaaa gagttctcgg cgggcgaaat caccctctgg tcaactcatat ggtacaaaaa 540
 tggctttgac ccgctaccga cagatccggc cgggtacatc cctgtctgat ggagaggaag 600
 atgaggatga tgaagatgaa tgaaaaaaaaa aaaaa 635

<210> 170
 <211> 533
 <212> DNA
 <213> Homo sapien

<400> 170

ctgtgatctc	acaagtgtga	aaaatcttat	gaatgtaaaa	tgtgtggaga	ttcttctttg	60
tttttagctt	ccactttggg	aacatgtcaa	agcacacatt	gagaagtccc	atgagtgaag	120
gagatgttgg	aaagcccttg	aacttggtcg	ttaggaaaca	tccacactga	agaggaacct	180
gactgtatgg	aaggtcaaaa	aggctgtatt	aatttacatg	caaaaagtca	cactagagga	240
atgccatata	agaatgcttt	tggtaaataa	acatgtttta	aagaggttat	atatcattaa	300
taaaaatata	tagctgggtc	gaagaccctg	agttatctca	attgttcacg	gttacagatg	360
gaactcttta	ttattgagga	gttccactct	ttcccccat	tgtcactact	acacttccct	420
agtcttttaa	acaattttag	gctgggtgca	gtggctcatt	cctgtaatcc	cagcactttg	480
aaaggccgaa	gcgagtggat	catttgaggt	caggagttcg	agaccagcct	gga	533

<210> 171

<211> 568

<212> DNA

<213> Homo sapien

<400> 171

cccttgscaa	actttccctt	aagtattgca	ctacaagtct	aagacacttt	tcactcaaag	60
ttcttccctt	ccttacctct	cttttaactt	ggagtcagac	tttcatcagt	ctgacaactt	120
ctccctgtct	ccttcccttt	cccccttca	caagcatttc	acctaacaaa	tttcttatgt	180
gcttaatccc	ctcttagaag	cagatgccaa	gatgggatta	agcacataag	aggtcctgga	240
ctaatacaat	gacaaaggct	ccccttgaa	catcacacta	aaaggaaaaa	aaaaaaaaaa	300
acctagccat	tttacattaa	ctatttctaa	aatatagtat	ttgcttccct	atttgctaaa	360
acaaaatata	ctaaacatga	ctattccaaa	aatctgtagg	gtactaagaa	tatgaagaga	420
ttcactctac	ttcaggggat	ggagttgtag	tagaaaaggc	tttgtggagg	gaggggtggtg	480
tttgaaatgt	actttaaaag	ccatcctcaa	agcctcgagg	gctataacctg	gcctgggtgat	540
tatccaagga	cagtccattc	aaacaggg				568

<210> 172

<211> 167

<212> DNA

<213> Homo sapien

<400> 172

ccattttacag	gaatcagcca	cttcagttca	gacagcttta	ttaaaccgcc	tggagcgaat	60
tttcgaagca	tgttttccct	ccatacttgt	cctgatgct	gaagaggaag	ttacttccct	120
gaggcacttg	ctggaaacaa	gcactttgcc	aataaaaacg	agagagg		167

<210> 173

<211> 391

<212> DNA

<213> Homo sapien

<400> 173

cctcccaaa	tgctgggatt	acaggcatga	mccmccmcgc	cctgatgata	gacacgtttt	60
taactttctaa	aaatatatga	tcattgattgt	gtctgtggag	acttgacat	atactaaatt	120
ttamcaatt	agagatat	gttcattacc	acattttggg	agtcattatt	tcctctatga	180
agagagaaa	gaatttgata	caagttcaca	ggggcttcca	gtagattgag	actttttatt	240
ctagctgagc	tgctgatgta	tgaatttttt	ttgktattat	gactttcata	tgtattaaaa	300
ataaaatgaa	aaaacaagg	attaggtgag	gaacctatac	gtctctaata	tgcaaaaatac	360
cacagaaata	atgactgktg	ggaaaattag	g			391

<210> 174

<211> 474

<212> DNA

<213> Homo sapien

<400> 174
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aggttaggga tacacactgt gagctgccac aggctcaaca gtacggatag ggggtgctgg 180
~~aactagctag ggccttgacc accaagctac ggcctccatg gagaggagg ggtatgggaa~~ ~~240~~
cactgaacca cccagccaca aggttatctc cccatacagg gcacctttaa aaaaattatc 300
cttacagggg aagacgggga ggaaggatga actglgtgcg gtgatgttgc agtgagtgtg 360
agtttgtgtc cgtccgcttg tatgagggcc taccttttac taactagccc ccaactttca 420
ttatctcccc tttttctgtc tacccttctg ccttttttaa gtggcttgca atcc 474

<210> 175

<211> 655

<212> DNA

<213> Homo sapien

<400> 175
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gcaacatgta cccacaaatg ttccaggagg taaataaaaa atacaattca gcctcttcta 120
aaccatcctt gttgatatct ctgctacttc cgaaagttaa ttcgttattt ggactccata 180
atcttttcta ttaattcacc ctatgtccaa ctccaacagt gaaaaaaatt tatttaatct 240
ttgcaataag cctataggca ggcagcatta tcttcagtct gcagataagc taaggctcag 300
agaagcttgt atactgtcac ttaggttagta attgcaagag ctggcattca gaccagact 360
gtgggactcc tcaactccatt ctctttcccc ccaactaggct gctcctttaa atacaatgga 420
tgcttgatga acgcttgtgg gaatcctggg tggacacagt tctttttcgg ccaaaagcac 480
cttgacgact tgtgaagaat taatctggaa aacttaacct atttataaaa acgtgttatt 540
aagggcaggt tattcccacc ccttttacca aagaaaacccg ccttgacctt tttttactgg 600
gggttggctc tgggcatttt caacaagggg ggaacagttt aaaaattccc cctt 655

<210> 176

<211> 660

<212> DNA

<213> Homo sapien

<400> 176
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gttcacatga aactacccct tctccattgg gggctcagac tctgctctca tccaggatcc 120
tgaactctgc tccaggcacc tgttcaaccc tctctcccac ccactgcctg tcaactcact 180
gactccagtt acattgaaac aattttcagt ctaagggagg attttctacc ttccagagct 240
gacctccgac tttaagactt gacaggtatt tatcttgaaa ccagagaggg agctggagga 300
aaaaaaaaact gagcaagcac atcaatgcct tttccaccct tcttcactct tccacactc 360
accgactgcc attaccaaaa cgccaagcac aaccggtttg gaacaagacg cattccgttt 420
taattaaaaa caactcatta tgtatttttag tgggggggaa gggggggcaca atcagggttt 480
tcaccaccaa attttccaca cggtttctga acaccattgc ctttttaaaaa actatttttc 540
cacctccaaa atattttatt aaattttatt tattacggag gtggtattct tcttttggga 600
gccaaattgg gaaatttagg gaacctttt tattaccgag ttttttgggc gggtaaacc 660

<210> 177

<211> 459

<212> DNA

<213> Homo sapien

<400> 177
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atgaaatgaw tttttaattc aagaamcatt cagaamcata ggaattaaaa cttagagaaa 120

tgatctaatt	tccctgttca	cacaaacttt	actctttaat	ctgatgattg	gatattttat	180
tttagtgaaa	catcatcttg	ttagctaact	ttaaaaaatg	gatgtagaat	gattaaaggt	240
tggtatgatt	tttttttaat	gtatcagytt	gaacctagaa	tattgaatta	aaatgctgkc	300
tcagtatttt	aaaagcaaaa	aagggaatgg	aggaaaattg	catcttagac	cattttttata	360
tgcagtgtac	aatttgctgg	gctagaaatg	agataaagat	tattttattt	tgktcatgyc	420
ttgkactttt	ctattaaaat	cattttacga	aaaaaaaa			459

<210> 178

<211> 720

<212> DNA

<213> Homo sapien

<400> 178

ctgcaagctc	ccactccttc	catttatctt	aacgcccagg	ctgacttcta	agctgctttt	60
cactttccta	cctccactgc	attttcgecc	ctgataattt	ttgtaagctt	acctaaagct	120
cccttctttt	gagatccctt	tcttaaaagg	gtccattcta	ttaaccctac	cccatatcca	180
gttaacttta	ctacctgctg	atctatcgtt	accttgctca	attcatggga	attacagggg	240
gcactgggac	aagagtaaaa	tgatccaaca	aacataatgt	tgcatTTaaa	aaaataagct	300
aaaagatact	gatgactttt	tataactaca	acatatctgt	ttgtgaataa	gaacatatat	360
agtaaaaaga	tgaaaatgtg	aacagggttg	ctatttccta	aatttatggc	agaagggttg	420
tctggagagg	atgggaagaa	aaaatgaagg	ctggcagtga	tggggtggga	aatgcaacct	480
ccaaaattat	ctatctatat	atttttatta	aaaacaccca	cagtaattat	ggcaaatgtt	540
aatggtttgt	ttgttctaag	gttttgata	catttaagat	ctcttgcttt	ctgggtacca	600
tttcttttct	tttcttttct	ttttttttca	aattaattcc	aaaagactta	tatctgctac	660
atgaagaacg	aagcaagttc	agctctcttg	gctgaaatgt	tcaaattgct	gagggcaagg	720

<210> 179

<211> 427

<212> DNA

<213> Homo sapien

<400> 179

ctgtgaatct	gtctggttct	gaacttattt	tttagttatt	ggcaatcttt	gtattactat	60
ttcaatctct	tcctggttta	atctaggagg	gttgatattt	tccaggaatt	tatccatctc	120
ttgtaagttt	tctagtttat	gcacataaac	gtgttcatag	tagccttgaa	taatcttttg	180
tatttctgtg	atatcagttg	taatatctcc	catttcattt	ctaattgagc	ttatttgaaa	240
cttctctctt	cttggttaat	cttgctaattg	gtctatcagt	tttatttatc	ttttcaaaga	300
accagctttt	tgtttcattt	atcttttgta	ttgttttgtt	ttgtctcaat	ttcatttagt	360
tctgctctga	tcttcgttat	ttcttttctt	ctcctggggt	tggggttaga	ttgttcttgg	420
tttctctt						427

<210> 180

<211> 728

<212> DNA

<213> Homo sapien

<400> 180

caaacacaaa	agtcactgtg	tgtgtgatgc	ttctccaatt	ccactcatcc	tggtcgccat	60
tcatgcacta	gtgcatgtat	gcattttttac	atttttttaa	ttacaaaaat	caacctatta	120
taactgctta	gatatatatg	aagtaaaaaat	gaaagttctc	ccttttacatg	acccatcccc	180
catcatttcc	ctcttttatct	tatactgtca	gcattcccag	cttgtagcac	agtgcttggc	240
aatagtaaat	cctcaaaaaa	tgatcaatga	ataatttaat	aatgattaat	aaataaatta	300
atgatgatgg	tgaagataaa	tttttagcatt	tattgaacgc	taactacaaa	ccagggagtg	360
tggtaaatat	tttataaaaa	tcaatgaatg	agctaaaaatg	ccattctatt	atttttttgg	420
atacggttta	atatttttact	cataaatatg	cttaaagaat	attataatta	tatgaccttag	480

aatggtaaaa	caatatgtac	agcagtatcc	tatTTTTtag	aataaaaaata	taaatatgtg	540
ctcacatatg	tggttggggc	atgcctagaa	acccgattag	aacgggattt	tttcttacca	600
ccattttttt	tacctgggaa	aaatatggga	aaattttatt	tcccttcttt	ttgggttctaa	660
aatttatata	caggagccta	tttggccttg	gataaatcat	tttaaaaaag	gtgggtttaa	720
aaaaaaaa						728

<210> 181
 <211> 546
 <212> DNA
 <213> Homo sapien

<400> 181						
acaatccttt	ggaagacact	actgggccttt	gggtgctgct	ttttaataat	tgagttatct	60
tgagcttgcc	aagtaggac	tattgcctgg	actaaaattt	atttccta	cttctgatga	120
ccaagaaagg	aaaaattaag	tttgcagatg	ggagatgaaa	tatagccagc	gaatatgcat	180
actggttctg	aatgaaagga	attaactttt	cagtcaagaa	acagtcctgca	tgccgtaaaat	240
tgaatttttc	ctgcaactgg	aatgattggg	taattctttt	tgaacactgg	cctttctccc	300
caagaacact	aatgaattgc	taatattttt	taaagaaaac	tggtttttta	attaggttaag	360
ctccacttcc	tcttattttt	taatccctaa	agaaaactgt	taaaagggaa	tggtatctatc	420
acgccttttc	ttttaaaacc	acctttttta	aaaaggattt	ttccaacccc	caatttgctc	480
ttatttttaa	attttgaacg	ccaaaagaag	ggaaataaaa	atttttccct	taattttacc	540
ccctta						546

<210> 182
 <211> 333
 <212> DNA
 <213> Homo sapien

<400> 182						
ggccactctg	actgggtctg	ctaattcaca	tgcctcttct	gacatacggc	tctaagaggc	60
agaggctgga	agagaagtat	gtgggttctg	ggatcaagat	acccaagttt	cagtccttgac	120
actgctatta	cttagtcagg	tgaccactgt	aacttcctct	tgattgagcc	tcagatgtct	180
cacctgcaaa	atggagtttg	aaatttgcta	tgggtgggtg	tcacacggat	taaatgaaat	240
aatgcctgtt	aagcgcctat	ccagcactta	ataagatggc	cactgcatca	taatgctttg	300
ggcacaagta	acacaacatc	caaccctaaag	ggg			333

<210> 183
 <211> 393
 <212> DNA
 <213> Homo sapien

<400> 183						
ctgaatttct	tggtctttat	gtggcagtg	ggtaaaaaata	tatgatcaga	tttactgtt	60
aagaaaattc	tttcagcaat	acatgtagag	tcaagtttct	tgcatggata	actgaacatg	120
tggtttatga	gatttttaaa	aatgtctcgt	gacaaaacttt	acggaaatgc	aacaatctgg	180
acatctagtt	ttgtctgaga	gtggcgtgga	tatgaagaac	tgtgctgttg	gtgctgatgc	240
cacactaagt	tttggcagtc	acactcttgg	ttcttcatat	ttgaggagat	gggatggatga	300
ggaggcctgt	tggttttatt	ttattacgtg	ccaccatcta	gaatacagat	tcttggaat	360
ttcatcttca	caaagggtgaa	gctgcaaact	cag			393

<210> 184
 <211> 700
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(700)
 <223> n = A,T,C or G

<400> 184
 ccaggscawt gaggaagagr gaaagaatwt arrggstwt caaataggaa aaraggaagt 60
 ccaaattggt ccctgttkg ccagataacc atgattgkgk atttagaaam ccccatgwtg 120
 tcagcccaaa atctccttaa gctgattaag camcttcagt aaaktctcag gataaaaaat 180
 caatgtgcaa aawtcacaag ctttcctatm cgamcaatam cagmcaaca gagccaawtc 240
 atgagtgrac tcttattcac aattgctagt aagagaagaa aatmcctagg aatacaactt 300
 mcaagggatg tgaaggwtct cttcaaagaa gaactacaar ccrctgctca aggaaataag 360
 agaggmcmca agtaaatggg aaaagcattc tatgctcatg gataggaaga atcaatcccg 420
 tgaaaatggk gatactgccc aaaataattt atagattcaa tgctatcccc atcaagctac 480
 cattgacttt cttcmoggaa ttnggaaaaa tctactttac acttyatagg graccaaaaa 540
 agaagccctt gttagcaaga caatcctagg caaaaaagac caamcctgga ggcattcacag 600
 tmcytgactt cmaactatwc taccaaggny tmcrgkgmcc aaaacagcac ggkacntggg 660
 mccaaaccrg acwtwtwgac cmmcagacac agaacmgagg 700

<210> 185
 <211> 192
 <212> DNA
 <213> Homo sapien

<400> 185
 ccagyccttc ttttaagtaa gcgctttttc aagctcattg tagctacaaa gtcaataaat 60
 tggctctttgt tattttttacc tgaaaaggct gttaaagggt aaaatgacaa actcaaattc 120
 aaagggattg gaggatttgg tgtttatgat ttctcagaac aacaatctag agaccaccag 180
 ggtgggtttc ag 192

<210> 186
 <211> 688
 <212> DNA
 <213> Homo sapien

<400> 186
 gtgctggaat tcgcccttag cgtggctcgcg gccgaggtgg gatattttctt ctggatagat 60
 ttcagatagg tagttccctc aaataagatt atatgggttt gcattttcaa ggcagagttg 120
 tatacttctt gctctttatt taaataaaaa aacttgaaaa tctgttctgc ccagtattgt 180
 aagcgctcag gtacaaatat gaatgaaaca atctctgcct aagtaacaca agtataggga 240
 caagattctc agtaaaattc tcacgtgaaa ttgttaactc actagacact atcaggagat 300
 caataattat gtaattaaaa aaaataatta cctgccaaac tgggttcttc tttggcactt 360
 ctgcttggtt ttaagacaat tctcacatag aagcttatta tccccatta gtcattccat 420
 agatgtaaaa ctggtagaaa caggacttga attgaacatt ctttacaagt aagttatata 480
 gcttctgaaa aaagggcttg aaaaagcatt tttggggact ataagaacct tcaaatgctt 540
 tcccccttta acaaacctta aaattatttt gaaaataatt taaggggggt gattttctct 600
 tgtcaaaatc ttgaacccca cttaccaggt ggttggtcaa accaaagtcc aaaaaaagc 660
 ttctggcctt tcttttatcc cacttgca 688

<210> 187
 <211> 779
 <212> DNA
 <213> Homo sapien

<400> 187

gcaaaaaaca	gatacatttt	cagtgtttta	aaatgaacaa	gtatggaaa	gcttatacag	60
taactgaaaa	gtctcctttg	ggaagccaag	gtgggaggat	tgcttgaggt	caggagttca	120
agaccagccc	aagcaacatg	gcgagacccc	atctctacaa	aaaattaaaa	aatcagccag	180
gcattggcga	catacttgta	gtagttaacta	catgggaggg	tgaggcgagg	ggatcacttg	240
agtcgcgagag	tttgagggtg	cagtgcgcgc	caacgcgcgc	tgactccag	cctgggcaac	300
agagcaagat	gtctcctttg	ggaagccaag	gtgggaggat	tgcttgaggt	caggagttca	360
tgctctacaa	aagtcctatt	tcttcccaca	aaaagcctct	ggtacctggt	gttagttctt	420
ggggtggaag	attactttta	aaaatagaac	tattttttta	gtatatcttt	tagggaactt	480
tagttcccga	agcttttaga	aatgggatct	tgaaaacaaa	agggatttca	atacctatga	540
caatgcttaa	agaattattg	gggcatttat	ttttcaatgg	agggtcacaa	aatcttttga	600
aacccttggc	caattaccag	aagccacttt	aatttttgac	cgaaaatgtt	tttaaaaatt	660
ggcttttggg	aaaactgtct	ctttccccc	aaatgaaaac	cttgaaaaaa	aggggaattt	720
ttaaggttgc	cccctcatta	aatttttaac	cctctgaaa	aaaaccctct	tgtgacagg	779

<210> 188

<211> 394

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(394)

<223> n = A,T,C or G

<400> 188

ggcgamgtct	ggycaccatc	atgcccttta	atcaactcac	acctgtttta	agagtgtttc	60
tgatttgacc	ttcatccctt	agtttactgg	cgtaaaaaaa	agtctcagca	attttcatta	120
tttctcgtgg	gtctcattat	caaaccctta	cttatttcgg	catatttcct	ctgggcttct	180
tctagtttct	gccttacaag	caatgctgtt	ctgtaaaatt	attgaaacct	ctggaacatt	240
tcacctttag	agatggagga	tggaaggatt	ggyaccagaa	gagggctaag	atacgttytc	300
tgtcttngag	ctgaaagcac	agycactctt	ccttcgtttt	gycgatgaga	aaagttaggg	360
ccagaaggga	ggtgacatgt	ttagagtcac	ccag			394

<210> 189

<211> 681

<212> DNA

<213> Homo sapien

<400> 189

aagttctgac	tttgggtctat	aaaacagggt	tattggctgt	ggctgcactc	aatatctaaa	60
aagttattag	gaagtgcctc	gttattgtca	ttaaagatat	ctaaatatgg	tagaccaaag	120
gttggtgaga	aacacatatt	atggactgag	ttctgtttct	tctgctgtgg	cgcacctaa	180
ctcaagcctt	ccttctctcc	ctccccctt	ggccggcatg	gtatctgagc	tcacagacag	240
acaaggcatg	ttagaatcat	cagatcatga	gcaccgtgct	gggatttagc	cctctccaaa	300
gtcaattctt	acagtccata	ctttgcttaa	atcctcagtt	gttgaggctt	gctctgctgt	360
cagtaatccc	agctataaat	ttcccccaaa	tgtggggcct	agataaagta	gaagggtggat	420
ggactcagct	tattttcatg	ggatgacagg	aactggaaa	agaaaggcca	ttgaaaataa	480
aaaagttatc	cagaatagca	ttaccctctt	tactgttcaa	gaattaagaa	agcctactta	540
gaatgagggg	ccttgagaat	gatacccaaa	tattggctct	tctacaaaaa	aatggccttt	600
ccaaatatct	gctttcctgt	tcccccaattg	gctttttaag	tagaattaag	ttacctaaaa	660
ctttacctga	agggtgggtt	t				681

<210> 190

<211> 839

<212> DNA

<213> Homo sapien

<400> 190

caaatacatg	atttccattg	gcatagactc	ttctatagtc	tctcaggcac	accttatgac	60
taataagaac	actgtcttct	agatataagc	caagttttag	gagttatctt	tgtagtttct	120
gtgttgagac	tatgggtctt	ccctgtgcaa	agacttgatt	agcaaatact	atttgaaacg	180
atcccaaatt	catagtgcag	ttgaccaccc	ttctgatcaa	ggggatctct	gtatatccca	240
tgaaagcttc	ataggtctca	ccctagatta	agtgtttcac	ttctcaagac	agtgaacaga	300
tggaagactt	ttgtagttat	cattatacaa	ctgtgccctg	tgtgttttat	tatacaacca	360
gagaactgag	gcactggctt	tacctgtcag	ctacgccagg	ggtgtgacgt	catctttctg	420
acttgatcac	acatgccaca	ttgcttaata	tttcaagctt	agactgaaat	aatcctgtgg	480
taaaaaattt	ttggggggct	ggggaggtaa	agaacaaggg	ggggaacttt	ggaatatattt	540
tattcattaa	tcatatttcc	cgaattgtat	tttattttga	aatgaccata	agggacttaa	600
atacgtattg	tggttaaatt	aaatggaccc	aaatggaggt	aagtaaacct	aatgggacaa	660
atgaataaaa	ggtttatgac	tgggagcatt	tacccatgaa	cctccttaga	agctatttaa	720
cctttctttt	ggaaagccct	gaaggctggg	aacttaaatt	ttaaagacag	tacctatttc	780
cagaatcgct	tccaaatggc	catgttttaa	agggcccaaca	ttttgggatg	gccctgccc	839

<210> 191

<211> 697

<212> DNA

<213> Homo sapien

<400> 191

ccatcctgaa	tactgatttt	ctaattggaac	tctattcaat	ggcgattgta	aaacctgag	60
gctccgttac	tattatggag	catactttca	tctcattctc	ggctattggg	caatatgtat	120
ctcataagat	tttatcacat	ttcacagatg	aactgttaat	tgattccatg	ggtacgatta	180
ggcgagatcc	aagctggagc	tgcagctctg	agtcccataa	attctttgtg	cttctgtaaa	240
gaataaatct	gtttttaatg	caaattaaaa	ctactggcag	ggaattttgg	ctcccagtta	300
ttaaaagact	ggaaatgtgt	aagtggagaa	aggcaataac	tgcagtaatc	tcttaccgga	360
ctctattata	attccaaaca	tacataatgg	tgagaaaaac	cgggaaggga	agaatgtggc	420
aatgtccact	ctttgcccca	aacataaccc	ttaatttcca	tggcggggccc	aaacactggc	480
aaaaacccaa	atgggtaccct	ctatagcatg	caacttttat	ttcactccaa	acgaaaaatt	540
attttgacta	tggcttggga	aatccattag	tagaagaagt	tttataacct	ataggaaccc	600
ggccatttca	tttctaccaa	atcacaggaa	ttttagaatg	ggcaagggaat	ttacaggaag	660
acttgcccaa	ttatcttttt	ttgggggact	aaaccaa			697

<210> 192

<211> 687

<212> DNA

<213> Homo sapien

<400> 192

ctggttacta	tagctttgta	gtataattta	aagtcaggta	atgtgattct	tccagttttg	60
ttatttctgc	ttaggatagc	tttggctatt	ctggatcggt	tgtggttcca	tataaatttt	120
aggatagttt	tttgctattt	ctgtgaagag	tgtcattggt	actttgatag	ggattgcatt	180
gaatctgaag	attgcttttg	gtagtatgaa	cattttaaca	atattgattc	ttccgattaa	240
tgaacatgga	atgtttttcc	tttatttggc	gctctcttta	atttccttca	tcaagtgttt	300
ataggtttca	ttatagagat	ctttccttct	tttgggtaat	tcctacgtat	ttaatattatg	360
tatcgctatt	gctaaatgga	atgacttttt	aaatttcttt	ttcacattgc	tcctgggtggc	420
atattaaaag	ctactgatgg	atgggtgattt	tggattctgc	cactttactg	gaattgggtgg	480
atcagttcta	atcgttttct	tatgcacccc	tttacggttt	ctacatgtaa	gaatatatca	540
ccttcaaaca	cggataattt	gacttcttcc	ccatccaatt	gggaggccct	ttatatcttc	600
tcttggcctg	aaggctctac	ttaaaacttc	ttatcccttt	gttgggaataa	cagtggggac	660
aaatggacat	cccttgtcat	ggtccca				687

<210> 193
 <211> 493
 <212> DNA
 <213> Homo sapien

<400> 193
 ctgctaaaat gatgttgeta aagcattcct ttttcttttg attaaacttc atgtttacaa 60
 aaaaattaat tctagcagaa taacgaatgg ttttgttttc tagttctctg ctgaatgaac 120
 agttttgcca attatcttca tagagtagtg atataatgaa tgcaacctca aatgcaaacc 180
 aaccaattca cagtccatad cccaatcact tcttccatca gctcaaaaa tcgctaagtg 240
 aaccagtaga atggtttttg agcagtaata ggaaagcaaa tagaaagtca agggggactt 300
 tcaacgcaa caagaccaat tcagatcctg atctgactgg tttctaatac aatctctttc 360
 cagagtaatg gagcatgagt ctgccacaca gaactttaga gagagtcctt tatttcaaag 420
 actgtaaagt tggaagaatt cttccatctg caaagtcaaa tgtcaaaagt tgtgcttccc 480
 actcctcctc agg 493

<210> 194
 <211> 424
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(424)
 <223> n = A,T,C or G

<400> 194
 cyagggcant tnagcangas aaggaaatan mggggattca attagggaaac wraggakarw 60
 caagttgtcc stgtmtgcag atgmsgtgat tgtatatcta gamcacccca ttgtctcagc 120
 ccaaaatctc cytaagttga taagcawctt cagcarmgtc tcasgatser acmtcwatns 180
 gcraaanica cmwgcattct tatacaccaa tawcagacaa acagagagcc aaatcatgag 240
 tgaactccca ttccacaattg ctaenmaaga gaataaaaata cctaggaatc caacatacaa 300
 gggatgtgaa ggacctcttc aaggagaact acmaaccact gctcaaggaa ataaaagagg 360
 atmcaamcaa atggaagaac attccatgct catgggtagg aagaatcaat atccgkgaas 420
 atgg 424

<210> 195
 <211> 229
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(229)
 <223> n = A,T,C or G

<400> 195
 tgaacacct tnggaaggaa cctgctcgna tgtannanaa anggaccgga cagtctgcta 60
 aaatcgccct ctttagacgc ggcgcgcggg ggcagagttt ttctctgggtg ctttgacctg 120
 tatttggttt aatggttttg tcttaatctc ttcaatcaat aaaattgtgc gtatttaact 180
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 229

<210> 196
 <211> 557

<212> DNA

<213> Homo sapien

<400> 196

gcggtgggtc	atgctgttaa	tcccaccact	ttgggaggct	gaggtgggca	gatacacttca	60
agttgagagt	ttgagaccag	cctgggcaac	ataacaaagt	gagatcttat	ctctacaaaa	120
aaattaaaca	aacaaaaaaa	caaatcaaca	ttcatttgca	gggctctttg	gtcttcttaa	180
agaacaaaca	tatgaaataa	ataagctgat	tcttaaagat	aacaaatata	atgagctttc	240
tcaactgtaa	aagcatctct	aagtgtttct	atcaatgcat	atccactcca	tgaactaacc	300
tgaagaaaagt	gttgaccatt	ctacccaatt	aactgtaaac	taagattgct	ttaatggttt	360
gcctaaattt	gagtaccttt	aaattttttgc	tttttatcca	aattcattct	cccttcttca	420
aattaaatag	ttttgttaga	aatcgataa	gcaagatgta	cttttttagaa	agggcaatag	480
aatcctacaa	catgctagaa	tttgaaatgt	ttttttaaat	cagtmmtttc	tctatgctag	540
taactaagaa	aattata					557

<210> 197

<211> 624

<212> DNA

<213> Homo sapien

<400> 197

ttttactacc	tatatttaaa	atgatacctg	acgccccca	agacaaatat	attaattttt	60
ttactttgtg	ggatagagat	cagaaaaaga	gtagagatga	aaatactgga	gaaacaatgc	120
aggagatatt	tatgaggatga	gaatgtcaag	aaacttgtaa	agggagaata	ctataatgac	180
ccctgaagag	agagcttttag	accagttgag	tattagaggt	tgccacgtgg	ctattcatcc	240
actaataaat	acaagaaatt	actaaaatgg	aagccactgg	aaatatgttt	tgaggaaggt	300
gagaatgtgg	acctattata	aatgggtgaa	tatgatttct	ttctcattaa	gttcataaat	360
aactttcaga	catgtaacag	tttatgaagt	gtgccgtagt	catttagtat	aagttttata	420
cacaaaagtg	tttttactaa	gactgtcaca	ggttcttttg	tgaatcttgt	ttgtttttcc	480
tcattgtaaa	tactgcaata	gaacatttgt	gtcttaacat	aaggcaataa	atgaccttaa	540
gaaccttcac	ttttatatag	aaagtggagg	aaaagttggc	agagtaattt	gttgattata	600
gataaaagct	cttgtagaaa	ttgg				624

<210> 198

<211> 175

<212> DNA

<213> Homo sapien

<400> 198

tttttttttt	tttttttttt	ctaacactta	tgcattttatt	ttcatgtgta	agaagaaaaa	60
cgtaactagc	acgtgaacat	gactgcatgg	atacacggct	cagcacgagg	ctaaagtcag	120
aagtgagtga	aagcaaaacc	gcatgttgat	ttaagtgaat	taacagaaca	gaaaa	175

<210> 199

<211> 871

<212> DNA

<213> Homo sapien

<400> 199

ctgttgatca	atgatgagct	cccaagagta	accagcctct	atatagtcag	catcactggg	60
ttctcaggaa	aagcatcacc	attgtttcatc	ttgctgcaaa	atgtatgcac	aagtatcttt	120
ttatttttaa	aaaagccctg	acatttttatg	actgctgctt	ttctaagata	ttttcaataa	180
tacagtccat	acggttcaga	cacaatggac	tggggataga	gacggctata	gtgccgataa	240
tggagaaaat	agccagagct	tcagatatatt	gttttccagg	acatctcaat	aattgggtac	300
acctcacaat	atgtgagact	tgacgtcgag	tggcacggca	tactctggcg	caggcacttg	360

ataaagactg	tgtttgcaaa	tacttagcct	gcacttcaag	ataccaggca	tctaagcacg	420
tcccagatgg	tgacagttaa	tcttcaaaaa	accctatgtg	gaagtattat	cattgtcctc	480
attttacaga	tgaggaaaaa	gagacacagg	gatgtcaata	tcttctctaa	ggcacacag	540
caagtaagtg	atggaacagt	ggctcagcca	tgaagctatt	gctgttaacc	actagggtga	600
tttgccttca	ttaatttctt	cctaaaactg	cacatttccc	gttagtccct	ctttttggtc	660
tgctgcttga	ctcttggtta	ctgcttggag	gaagcttctt	tctctctctt	tctaaagttg	720
taaatatgtg	caactccttg	gggacatgac	caggcaaaaag	ctggatacag	aatgtatgac	780
ccaaacacca	tccaagtta	cccctaacag	gtcttttctg	gacctgtttt	gtaagggggg	840
tatatttggg	aaaattttta	aaattttctg	g			871

<210> 200

<211> 737

<212> DNA

<213> Homo sapien

<400> 200

gacattttga	aggtaacagc	aatatctgtg	tatagatggg	gttgtgggtt	tggtatttat	60
ctgctattgc	tgaactatcc	tttgtcttga	gcgataaaaag	agaagtaaaa	tactaaagaa	120
ctgaactgtc	catttctgga	ccatgagtaa	agatgctggc	tgtcaaactt	cctgttcata	180
cattagttta	tttatagagt	gtactctcta	tgtaaaggtat	tgactgataa	tgttactttg	240
acttcagata	gcttgcagtt	taatggagga	agaagacaaa	catgcaaata	actagggtcaa	300
tgaggcatcc	tttgtgttcc	attggaagct	aggtgctttt	gtaaccttgt	taatttctgt	360
ggttttggag	tgcattcatt	agcaaataca	ccccttgttc	ttatccattc	tctgcttttt	420
tctttatttg	gcatttgatg	acattttttc	atgtgggggaa	attgagtcag	gtgaggtgga	480
aagaaaataa	ggacacgaca	ctaaattctt	tgatgttttt	ccttaaaaaa	ttgtttttca	540
agtgtctcat	aaagggttgt	gaagttttaa	gagccatagg	acttggatta	ttgtgaaaga	600
gtgtctctag	ggggccaggt	taaaccattt	caaggactct	ccttctctca	tctcccttgt	660
tccaccaggg	gtggcgaccc	ccaaaaagca	caaagcctcc	ctttcttcat	gggaagggtg	720
aggaacggaa	gggaacc					737

<210> 201

<211> 493

<212> DNA

<213> Homo sapien

<400> 201

tctagaaatg	cagcttttat	ttattacccc	atctctttca	agtccttgga	aaataacata	60
ttaagggtac	aagaaattaa	cacatgatgg	aaaagtcatt	gtgacgcaa	tgaatttcat	120
tgagtataaa	ctcatctact	tcaaatttat	tttataacac	aacctaaagt	actcaagata	180
attattttaat	ggttagctct	taagttgaat	tggctctacat	aatgcgtggg	aagaaaacca	240
gattttttagc	cttcttgcca	aatccagacc	tctggttgat	tttcttttga	cagaagatgc	300
aagttatttt	ccaatttcac	aattaaatgt	atttaacatg	aacattattt	tgcttttaaaa	360
actataaaca	ttgtaggaga	attatagcca	gtcttcagtt	ataaccactc	cacctctctc	420
actttctctc	tctctctctc	tttttttttt	gctatgggat	ttaatgggaa	aaatatgtaa	480
aaactgtcac	taa					493

<210> 202

<211> 283

<212> DNA

<213> Homo sapien

<400> 202

ccttttttato	tcagtgcac	cgccggggga	cgcaggtggg	ggtgactcaa	ggctagcctc	60
aaagggcagc	cccacctct	cactctggac	cacagagacc	acctgcttgg	cgcgcgcgtg	120
cttttccgag	aggggtggctg	actccggggg	gctggggctg	gggctgccgc	ccccgcgcgt	180

gttgctgtac tectcgcccc agtcgatggg ggctgcccctc ggacagcagg tgcagggttg 240
 gggcactgtt acgcaagacc atgctgcccc gagaggtaga tct 283

<210> 203
 <211> 713
 <212> DNA
 <213> Homo sapien

<400> 203
 ctgcttttgc gcaaggtgcc actggacgag cgcctcgtct tctcggggaa cctcttccag 60
 caccaggagg acagcaagaa gtggagaaac cgcttcagcc tcgtgcccc caactacggg 120
 ctgggtgctc acgaaaacaa agcggcctat gagcggcagg tcccaccacg agccgtcctc 180
 aacagtgcag gctacaaaat cctcacgtcc gtggaccaat acctggagct cattggcaac 240
 tccttaccag ggaccacggc aaagtcgggc agtgcctcca tcctcaagtg cccacacag 300
 ttcccgtcca tcctctggca tccttatgcg cgtcactact acttctgcat gatgacagaa 360
 gccgagcagg acaagtggca ggctgtgctg caggactgca tccggcactg caacaatgga 420
 atccctgagg actccaaggt agagggccct gcgttcacag atgccatccg catgtaccga 480
 cagtccaagg agctgtacgg cacctgggag atgctgtgtg ggaacgaggt gcagatcctg 540
 agcaacctgg tgatggagga gctgggccct gagctgaagg cagagctcgg cccgcggctg 600
 aaggggaaac ccgcaggagc ggcaccgcag gtggatccag atcttcggac gccgtgtacc 660
 acatgggtgta cgagcaggcc aaaggcgcgc cttcgaaggga gggggtgtc caa 713

<210> 204
 <211> 275
 <212> DNA
 <213> Homo sapien

<400> 204
 gtagacaagt acagcagatc cagacaccag atctagctag gctaaatgta cagtatctaa 60
 cttgatctga actgaacctg tttccttga tgatgcctaa aactacatcc atagaattct 120
 ggtgaacctg taatacagtt ctgaaagtac agttttatat aataagatgc tgatctcttt 180
 attctttcaa gtaagagtgc tagagaacaa attgtgttac ttgccttggg atttattgaa 240
 cgtctggaag atgctgtctt cctagatcca aacag 275

<210> 205
 <211> 694
 <212> DNA
 <213> Homo sapien

<400> 205
 ctgttctctg acatttaact gaaaaaaaag taacttaaaa taatataaaa atagcactca 60
 tgtatgtcct acagttatag gtgaaatttg atattgtttg tcttacatag catacctata 120
 gacagcttaa gtaaagtgc tgtaagagg gttatgctta ttgatgaact cttgtagttg 180
 cttaccagct ctgttagtat agttaaattg atctcagtag cttcaagtat ttataaaatg 240
 gttgaagtcc aaatacatgt gataattaca atacactttg aattaatgga ggggtgggagg 300
 ctagttagaa tgcattttat ttacccaagg agtatgttaa aatgatagtt ataaatgttg 360
 gaagtttaaa gcaagatact cagtttagtt ctttacaat cataagaaga acaaaattag 420
 atgttgacat tgcattttta ggctgtgtgt tttccatag cttcttgctt tccctgtcac 480
 aggtgggtggc agcaatattg gtgtgattga ggttatgctg gcaccactcg cacacaggcg 540
 cacaatggtg ttagctgggc agaaagagtg gcattctctg ctaccgggct gggggcgacc 600
 tttaccatag gatgaagtaa ccttgcatc ggctgcaagg tgtactgtac cgtacacagg 660
 tgctgggtcg atggccactt tctgcttttc tttc 694

<210> 206
 <211> 704

<212> DNA
<213> Homo sapien

<220>
<221> misc_feature

<222> (1)...(704)

<223> n = A,T,C or G

<400> 206

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ctcaggggat	ttgcccgcct	cacccaattc	aactttcgta	agtcagtatt	taccatctaa	120
ctcagtgtcc	caaaatttaa	aatttccttg	cactttacag	caaaaataca	tattggggct	180
ctactgaagc	aatatataca	tgtcaaaaact	aaaaatcaga	aaagcaaaag	ggtcattca	240
acatatagca	gcttatattt	aaatatgtac	aggtatgtat	gttttcacag	ttagatcttt	300
aaaaaaattt	atatttgata	tgttcaaaaa	tacttctatt	ggctataaat	aatattttaa	360
aagctcaact	gatcaaaatg	cattccaaga	acatatcaaa	ttaaataaat	cttctacgtc	420
tttaaaaaca	gataattgaa	gtcagtaaag	cttgagggtt	gtgttaagtg	tattctgtca	480
gtccctacta	ctaggggaag	cagaatcttc	taaatacgat	acgaaagaaa	ctcccaaagc	540
ttggaaggaa	tcggcagctc	ctgaactttt	tggggggggc	atccctcttc	gggattgaca	600
tgcgacataa	atgttgcaag	ctaagggacc	cccccgggg	gagtggggcc	caaaaaaac	660
cacaccttcc	ccgtcaatgg	tggtccccc	accaacctta	aaaa		704

<210> 207
<211> 225
<212> DNA
<213> Homo sapien

<400> 207

ccattttaac	tgtactgcca	atagaattct	ggaattgtgg	aaaattgtat	cattgaagtt	60
cagtaggatg	tgtggcttaa	aaatttatca	ggaccacaaa	aaagaaaaca	aaaatatttg	120
gtactgaggt	tcattgccag	ggcaggaggt	atttccagaa	aatactcatg	cctgtgttct	180
gttccttgct	ttcccaaata	ctgcatgtga	ctttcctaag	cygca		225

<210> 208
<211> 678
<212> DNA
<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(678)

<223> n = A,T,C or G

<400> 208

cctatatcta	tcaaaaaaaaa	tccagttcct	aactaataat	ctccccaaaa	gaaagcacca	60
ggaccagatg	atataaatgg	caaatttttt	caatcattta	aggacaaaat	aataccaatt	120
ctgtatcatt	tettccagaa	cacttcceta	ctcatcgat	gaggccagca	tcactctaatt	180
agcaaaaacca	gataaaagcca	ttacaagaga	gagtgcagca	ccaatgtggg	tttattgagg	240
atgcaaaaca	aatttaacat	aatatttaat	agtgaaaaac	tggatgctct	ttccctaagt	300
tagagattaa	ggaaagaatg	tccccctcac	tactcccata	caacacctta	ctgaaaattc	360
tagctagctt	tataaaaata	anaaaaacca	naaaaataaaa	taaaagggtg	acagactgga	420
agatacagtg	aaggagggaag	aaataaaaatt	ttctttgcgc	ataacatgat	tcttctatgt	480
ggaaatcaca	gagatttgaa	catttttttt	ttttgagaca	gtttttgctc	ttgttgccca	540
ggttggagtg	taatggcgcg	atctcggctc	actgcaacct	tcacctcccg	aattcaaggt	600
gattctcctg	ccctcagcct	tcccggagta	agcttgggga	ttaacagggc	atggcacccc	660

ccatgcccc agctaaat

678

<210> 209
 <211> 720
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(720)
 <223> n = A,T,C or G

<400> 209
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 aaagtatgca aagagtagga aattattctg atgacatatg gagggttaca aaggagaaaa 120
 ctttttgcta cctctgataa agaatagact aaattctcca agaccaatct gactgggtgc 180
 ataataaaaag gaggtacaca cggaagcaca agggatgtgt gcctctggag gaaaggtcag 240
 gtgaggactc agtgagaaga caagccaagg agccaggtct tggaagaagt caaccctgtt 300
 gacaccttga tcttggacta accctgtgga caccctgata ttggactttt agcttccaga 360
 actgcnagaa aataaatttt tcttgtttta gccaccana gtgtantgtt ttgttatggc 420
 agccctaaca aattaaaatt atatttttaac agagaatata aaattctaata ataacatttt 480
 acagtaaagc attcatgggc ttttttttct tattaataaaa tccatcaaaa cagaaagttt 540
 tgcaaaaatt taacacattt ctctaccact actgtttcta ctctcttaaa actactccgc 600
 aaatataaaa atagaaggcc aaaatgcac attaaaacga tgtttgggga ctaatggcct 660
 taaaattcta ttacacttgg aaatatacaa atattcaaa attatctatt gatcacctca 720

<210> 210
 <211> 277
 <212> DNA
 <213> Homo sapien

<400> 210
 tccatgtatt ttiatacaga atggaacaat atgtatgtat gcaatykttta cattccacca 60
 tgaaataaaa cagtataatg aaaataacaa tagattcaaa caatgatatg ctattttttt 120
 ttacctatga cattggcaag gtcttcttaa aaaatctgcg aataaccgat gttggagaga 180
 tcatggggaa atagccactc aaatgttact catgagagtg tacatatgtg taacttcact 240
 tggagggcaa tttggtgata catttaaaaa gtttttgg 277

<210> 211
 <211> 715
 <212> DNA
 <213> Homo sapien

<400> 211
 gtggtagaaa tactaatttt gcaattacag aaaaaaacia atgccattca catgggttyct 60
 aacaaaaagt gtctgaccac cccaccccc caccctcaa aaagccctta aataaagagg 120
 aagatcaaaa gaaaacaaaa taattcccga gtttcacctc atacatacaa tatagcacag 180
 gaagtggcaa agtttaaaat aatgccttta ctggttaggac tagtatgctg tcaaaagcca 240
 caatcctttt gttttagtga gttgattttc aatagaaaaa taaaaatgaa catgtgttta 300
 agttccaaca tggattgagc acctctgaat ttagtatcaa atgattaatt ttattttttc 360
 gatgtcaaat cttagtataa aattttccat ttttttaaac ttcacttgaa tctttaaaaa 420
 agctgtctaa attgtactat atgagttcag tttaatcttc tgtaaaatgc taacaaattg 480
 aactgtcagc agtcttttaa aaaaaaatgg gggctgggtt atttctagaa gaactctcat 540
 taagctttga aaatcagaaa tcagagacaa ataacttcag atatagacta gtcacacaag 600
 caaatttata caattatctg taacagtcta tacatatatg tgtatatata tataccgtaa 660

ccacttttcat aggtaaaaaa tattaacttc atgtcacact atgatcagaa gtata

715

<210> 212

<211> 717

<212> DNA

<213> Homo sapien

<400> 212

agcctcccc	aatgccttaa	aaggtcacag	tagatctcag	ctctgaacag	aaactcaact	60
gaaactcttc	ccacaaccca	gcagtagata	tattaaaacc	tacaattttc	agggatacaa	120
ccaatattta	attcttttga	gggttttgtg	tttaatacaa	ggacacaaac	acacgtataa	180
aatgacgatg	tcaatactga	ttaaacagaa	caacaaaata	agaagctcaa	attatcatca	240
gctatttgtg	atatctgaaa	taacaataat	gcacttgatt	ctgaaagaat	gattagagtt	300
cctactctga	aaatctaatt	gtcttgatgt	ggcgaagtga	gaagaaagga	tgatttttct	360
aatgaaaagc	atgtatacgg	gtagcccttt	gcgagattct	gtcaaaaacc	tgaattttgc	420
attagctgtt	ttaccaccca	aacgttttta	cccaggatg	tgcagcaatg	ggaactctca	480
tacactgctt	gtgggaatat	aaatcagtat	aaccactttg	gaaaaccatt	taacattgtc	540
aactacagct	ctacacacaa	gtgctataac	caccctattc	actccagggt	atacacccta	600
aaaatatgaa	gtgcccattg	ctacccaaaa	ggcgccttaa	aagggaatgct	tttgagaagg	660
gttaaccttg	ttaattagtg	gcaaaaactgg	gaaaacaacc	cccaaatggt	cccatcc	717

<210> 213

<211> 599

<212> DNA

<213> Homo sapien

<400> 213

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caaagcgatt	cagcaggatg	atgaccacag	gagtgtctga	gccgggcctt	tcagcccccg	120
tgtggatgat	gaccggccat	ccaggacatg	cgagggtctg	ggacagtggg	cagccagtgc	180
cacacaagga	aggaccgatt	aaatgacaca	gttaaaggaa	tttggcctag	ggagtgcgaag	240
ccagaaaagg	ttgggtcttt	tatatatgta	acattggaaa	aaaggaacat	ctcctgttcc	300
ctgtattaag	ttttgacttt	agctcagcaa	atgcagtgtt	tgtggcagta	aataactctt	360
gataacaatg	ttctttccca	ggaattttaga	gttttatgat	ggttattgaa	aatgtttaca	420
tgacaggctg	tcaataatat	tttttgcttc	taaaaataaa	acatacataa	agtgtacgga	480
ttttaagtat	gcaactcact	gaacttttca	taccgtaata	caccacccta	gtaaccctcc	540
cccagttcaa	gatgtagact	gtttccaata	accctccttc	ctgttcctta	atagccccc	599

<210> 214

<211> 789

<212> DNA

<213> Homo sapien

<400> 214

ccttatgaca	aaccttgcta	tgccaaggat	atgcttcact	atcttcatct	atcaaaacac	60
tatgcatcat	agatatctaa	ttttttcatc	tcttgcata	agtctttcct	gatttccctc	120
tgetgaaatt	tctctcttca	aatgatgtgt	ttccatagta	ctttgtccct	tttcaaagat	180
atatctcaca	tgcgatattt	taccacagtt	agtttcattt	cttaactctc	acactagatt	240
acaaagtcaa	tatagacaaa	gaaatgttca	accttatata	acctcctctg	cctatgctgg	300
taaattgcac	ctactatgtg	ttcaataaga	gcttgccttt	ttcaatatac	aaaactttgt	360
aaagattaaa	gacctttag	aaagtcaaga	ggaagatagc	aatttcactt	ctaagaactt	420
accctaagga	aacattcatg	aagagatata	aggggttatg	tgcatggatg	ttcattatca	480
tattattctt	cattatgaag	attatgatgg	taataatgaa	aatgattatc	ttgtattggg	540
ccttatttga	agtcaagcat	tgagaatgta	ctttatctgc	attatctcac	tgagttctcg	600
tagcagccct	ataagggtaca	gactgttata	taagcttaaa	aaaataaagt	taatgtccaa	660

ggtcaaacaa	ctagtaaaaag	aaggggggcta	ggaaattttgg	aacccccaaaa	ggggcaacct	720
ctcaagggt	atgaatcctt	accattatta	taaggaagct	tggcccatgg	tggcccaaaa	780
aaaaccggg						789

<210> 215

<211> 765

<212> DNA

<213> Homo sapien

<400> 215

ggatgtctga	gcaggagaga	gaccatgtga	aggatggact	gaatggagac	ttgtatcaaa	60
gagtcctgagt	atcaaagact	tgtattagag	aggggtgttg	tagtaatcta	gtcagggtat	120
gagaaatggg	ttgtattaga	gtgtcaggag	tagtcgtggc	aaaaatatat	agatcaggat	180
gagggatggg	cctcatctca	cacctgact	ccagtcaatg	gcagtggctc	cctggagtac	240
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aggagttcta	tgaacagtta	gtggtgtctg	ccatggttga	aacaatggag	aagggggaca	360
ccttttctgt	gcagatgttg	cttctggtag	atataatcca	caatgtaatg	ggagaagtac	420
taagaatcag	taaattatgg	aggggtgtaa	agactactga	tatttaagcc	tgcggaccgg	480
acttagagaa	atgatagtta	aaggagaaat	atccagcaaa	caaagatatg	acattgaagt	540
ttgggactgc	gatttagtacc	agagattttg	attggagggtg	atttgtatag	aatggatagg	600
tgattttact	cttgcaattt	ggattgaggg	gtggggaaaa	ccagaaaggg	gctggggggg	660
aaattagtag	aagggtcacct	tgaattcatt	gtgggtccata	tcaatgctga	aactgattgg	720
ggaacttttt	actcttgagt	ccctttgtaa	gggaaccccca	gaaag		765

<210> 216

<211> 780

<212> DNA

<213> Homo sapien

<400> 216

cctttttctg	tggcaaatgg	aggcttttca	ctgcctgtag	agacaataca	gtaagcatag	60
tttaaggggtg	ggtcagaaca	tgtaagata	acttactgta	tatgtattcc	cttgtatttt	120
gttaaagctg	gaacatttga	tatttttcca	tttattttatg	aaaaaatatg	aacctatttt	180
cattttgtaca	aggtaattgt	tttttaaagc	aagtcacctt	aggggtggctt	taattgtata	240
agtcaagcac	atgtaataaa	ttcaaaacct	gcagttaaca	ggatattaga	catcaatcct	300
ggtaaccaaa	tattaaagat	tctctttaaa	aaagactgaa	catgtttaca	ggtttgaatt	360
aggctaaaag	gtcttgcagt	ggcttttcat	ggcccttcaa	attggaatgg	aactactgta	420
ctttgcccatt	ttctataaaa	tcagtacttt	ttttttaatt	ttgatataca	ttgtgtgaaa	480
aaagaaaatg	gctaataaac	tgtattaaat	cttaaacaat	gtataaagat	tgcacttagc	540
cagttcaaag	tgtatactta	ttcataatga	attataacag	ttatatttct	gtgttttctt	600
gtaaatgttt	cttttccctt	aaatacacag	aattcatttg	tattgcttat	tttattatga	660
gctacaacaa	aaggacttca	ggaacaagta	atgtattagt	atggttcaag	attgttgata	720
ggaactgtct	caaaaggatg	gtggttattt	taaatataaa	tagctaattg	gggtggtaaa	780

<210> 217

<211> 810

<212> DNA

<213> Homo sapien

<400> 217

cttttaggca	gcccggcacc	ttcatccata	ggcagagaga	gaactgggtg	ttggagactt	60
attcgagggt	ataggaagg	ccctgtgaag	ttgatttaac	ttttggatgt	cagactgtga	120
aagctcctga	gaaacttggg	gtaataggat	cttcttttgg	ggatgaaaat	ggggaaggcg	180
tgaggaccta	gactacttct	ccctaggtca	gaaaaagaga	attacccctt	gacaaatatg	240
atacctgcta	ggtattttcc	agggaaat	agggattggc	gtctttccct	agcatgtgga	300

ggaattggca	gacagcttcc	taagggcggg	gagcgggggc	ccaaggctga	cactgcttgc	360
atccacgtga	ccttaagtta	tggcagatga	ctctgaaacg	gactgaggcc	aatgagaaca	420
gatggatgga	gcactcaggt	tagacttggt	ccttctccta	tgctggagga	gagggatggt	480
tctctagaat	gttggaggtg	agttgagagc	tcgctctctg	aatgttgaac	agtgtactct	540
tctgaaaact	gcatattcac	tttatgtggt	ttcagaatac	tgggctcaat	actaacataa	600
gaaagacact	tcattgagaa	attcttaagc	ttacagaaaa	cctatctctt	tgcaatcttc	660
acataacccc	tagcaaaatg	caggttcttc	atacttctgt	cctttttcca	ttggaagaat	720
tgcttaagga	aaaattaatt	cctattttatt	cccacaaaag	gttgggcatt	gctttgattt	780
taccccatgg	gggaatgtgc	ctttgaattt				810

<210> 218

<211> 817

<212> DNA

<213> Homo sapien

<400> 218

ctgctccctt	atggaggtct	cttcattaat	aattattgga	tagatagaga	aggtgagcct	60
gtggcttcca	agtaccggct	tttgctgaag	gtctacatgg	gaagaagagc	atcatttgat	120
attcagtaga	tctgccacac	ccaactggct	ccatctcctg	gaaaacagca	ctcactacaa	180
gcaactgtaa	tagcaccacg	caatgaccac	gctgctcctg	ctggctcttc	cgtacaccag	240
taaatgaact	caccaatgta	ttgcacacat	acatttcaca	gtagtacaat	aaagccctgt	300
atcaggagtg	gtaattcaat	gacttgactc	tatagtgcac	tgcagcttta	tgtcatacca	360
acattcaaat	attcaaatat	ccttccaatc	catttggaca	aaaatacacc	atggctgcca	420
agacacatgt	atcttctctt	cttccatgga	ctcctaaact	gctcccacaa	tcagcagtgt	480
tcttctctca	gaaattatct	taagcttctc	tactcaatgg	gaggtacaca	cagagacctg	540
agaatatgca	gaggccagaa	tctctgtctg	tgctagagat	caactgtact	ctgcccacct	600
ggggaacaca	tcctctgggt	aaagtactcg	gaagtaaatt	acattccctg	gagacagata	660
cgggctttca	ctgcagcctg	ttagaaaaca	caatgtctgt	aagttacctc	ataggtcaaa	720
gagttttgga	ttatatTTTT	cataatgggg	ctatggcctt	tttaccctgg	ttttaataca	780
gaaccacctg	cagaaaggac	attgaaatta	aaagcca			817

<210> 219

<211> 661

<212> DNA

<213> Homo sapien

<400> 219

ggatgctgag	gcaggaggat	tgagtccctg	agtttcagga	tacagtgagc	tatgatcatg	60
ccattgcact	ccagcctggg	caacagagca	agattctgtc	tctaagaaaa	ggaaaaagaa	120
aatgaataga	tagtgggtatt	agatgttaat	gacatcagtt	gtttttattc	tttattcttt	180
cttagaaaaca	gattagtctt	ctcgaattaa	agaactacca	ttttcttttt	ttctacaact	240
ttcaagagct	ggtgaagaaa	tgatgttttag	atttaataga	tatagtagca	gtcatatatt	300
aatagaatag	aaactgagac	tctaggaaaa	agatagacat	gagataagga	gtaggcatgg	360
tagacatttc	tagattattt	atgaaaatgt	tgtagaattc	atcttttttt	ttggctctgac	420
ctttggcaat	ggtgctgagg	aagggaaaagc	cagcccatca	ggcaaggctc	tgttttctgc	480
atcttatccc	gtttgattct	tctcgttagg	attggagcaa	ataatttcaa	tatgttcttc	540
gctgggttta	tcatagtgac	ccttcattta	aagggacttt	taacaattga	cttaaaagaac	600
actgagatgt	gatattttat	tgggattttga	aagttgccat	tgggttttac	cttccttaat	660
t						661

<210> 220

<211> 792

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(792)
 <223> n = A,T,C or G

<400> 220
 cctctttttta ttcctacaaa taatttttcaa gtacacacaaa ttgggttaaac aaagaaacaaa 60
 agccaccaag aatgaaaatc agtaggaata acgaacaaga ctacacagatg tcaaacaagt 120
 ctgtgggtct tgcagacttc agatgttggga attattagtc gtggcaagng nncaaacat 180
 tagctattac cattatgttt accaactagt gaagtgaact atgagaggat atattaacca 240
 cagaagttaa tagaagaata gactcctgaa aatatctgga tgctacaaac taaaatatag 300
 tatataatcc ttcataagagt gtcagtgact tcatatttat aattacattt ttgtatatta 360
 gcagtgttct agttcttact gccttatctt taagctgann nnaaatataa ttatatattt 420
 ggattcaaaa acacatagct aatgattact atgtggcagt gttacattac tttatcacat 480
 atcattaaca taatctgcat gtgttcaaaag agatcttcat acttctttgt agctccact 540
 tctttgtcgt ctttgttagct ccacacaacat ctagaacagc acaaccgtat atggagaaaa 600
 ctgagtctag tattcggtga atgactaatg gaaaatttag ttnataaaca gaactttctt 660
 cattgnacaa attatcttgc agaagaataa tggccttagt ttaaaattat catatttacc 720
 catntcncca ngttatttta tctcttttgg ctaanaattt tgaaaacggt accttttacc 780
 ctttggcatt tt 792

<210> 221
 <211> 759
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(759)
 <223> n = A,T,C or G

<400> 221
 cttttctgct gctccgggag gtggagtggc ctggcagagg gcacatggct gccacctgct 60
 gcaaggaaaa ttctcagtga agactcctca gtatgaagga gataagcctg cacaatcagt 120
 cactgataga tgcttagtg aaaaacttcc aattccatt tacagctctc agagctagga 180
 ttaaaaaactc ctggtcataa actcatgtga tgagaagtta tagcacgccc tcattttcta 240
 catanccact tgcatttatg gttggctttt gaacttgcta gaagggaaag aagtgcacaa 300
 gtgtcctcct tagagctact ctccctccct tgggtgggtt ccagtttggt cattgtccag 360
 atggcccgag agctgacgat caaagggag aagtcatgtt tgtcatgaga atgctttgct 420
 gcatcaggat tcagtgaagc tggtcaccgc ctggagccca tgcagcctca agaggcagga 480
 tggagctcag aaaccatcac tgagggttaga aagtgaacac caaagttgag ggaagccac 540
 aggagtgaac cgaagtgtc ctttggatt tccaaagtgg gtgctgctgc ttcttccatc 600
 agccttgctt ctgaccccaa tgcgttctct gtgcttctt cttggcattt tgcgtgctgg 660
 ggcccaagga aaaaaattcc tgcattggcag tgggtgaaaa agatggctgc ctgctgaaac 720
 ctgatttggc ctgggtgaagc ctttggagc cccggttaa 759

<210> 222
 <211> 699
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(699)
 <223> n = A,T,C or G

<400> 222

ccttntnaag	agttggcatt	aattcttcac	taaatgtagg	agtagaattt	atcaggtaag	60
ccacactgac	ctctggncct	nttnncgcc	gatgattttt	aattagttga	atccctttac	120
ttgttatata	tgtattcata	tattctgttc	cttcttggat	ttacttttat	gattggtgcc	180
tattgaggca	tttatttcta	gtttgtggtc	cttcttggat	ttacttttat	gattggtgcc	240
acatagaaga	ttcaagaagc	taaatgtagg	agaatgtnta	atgtaggana	ntgaggcnac	300
natacatca	atgaatgact	tgaagtttcc	tctgttgtaa	agaatgatat	taccataact	360
gccatagnta	atattgatgg	tgttaagtcaa	ataanaaggc	aggaggaaag	ggacatccat	420
cactgaacca	canatcagag	notcattgaa	gcctttgaga	agaatccaca	aaattttaca	480
ggataattca	tttctgcca	tcaccacnag	aagagaaact	ggttaaacag	acaggtatcc	540
cagagtccaa	aaattttacat	ttggtttcng	aaccaaagac	ctcagctccc	aggccacagc	600
aaaagggggc	ttatgaattc	cttggcacc	agncccaaga	cccaanaacc	tcattcttgat	660
tggtttnggg	cttgggaaac	caaaaaacca	atgggtggc			699

<210> 223

<211> 598

<212> DNA

<213> Homo sapien

<400> 223

aaaaagagaa	agtttcagat	ttgccattca	aggcttattt	atatatatgt	gtgtgtatat	60
aaatacatgc	acacacttgc	atacatatat	atttttggct	gggggagtgt	gagttttgcc	120
tttctaaggg	agggaaccgg	caggctcctt	tgttctgtat	tctggcggag	atgggtcctg	180
gccttggtgc	actggcttat	ccttaaagat	catctcccat	cctccccagc	gccatctgtg	240
tgcagcaacc	agaaagggat	gaacttggcc	ctcttgccgg	cctggacaag	gtctcttcc	300
taccctttct	gttgccagtc	agcaacctgt	aactcacatt	ctcttcccag	tgaatccctg	360
ggagcgcttg	accttgggtg	gctgttcagc	ttcctgctgc	tggggccagc	aatttttgag	420
gatttatctt	taggccaggc	ttgcctccgt	acttatccct	gctctcccat	ttctctcttg	480
tttgagagag	aatgaggaag	caaagagtga	gaaagaatag	gggctgaaga	cggcactccc	540
agatggcctt	ttctatcctg	ctcttctgtt	gaaacacacg	tgctgtgggc	ctcaggcg	598

<210> 224

<211> 501

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (501)

<223> n = A,T,C or G

<400> 224

aaacctttat	gatgacttcc	ttatgaatta	ctgaacgaac	actggaatgg	gactcaggta	60
tcctgaggac	atctctcaac	tctggcctta	gttccccctc	tgtaaaatta	gggtgccaac	120
taaatgatct	acaaggctcc	ttccagcgcc	gccattctgt	aattacatca	tgtgtaactg	180
tattaaacat	acacaagtga	ctgccaggca	tgggaatgta	acttccgagt	aaatgctttg	240
gtttgttcag	aatacactat	gaacttcttt	ccaaagacgg	gttgtggtaa	atagtggata	300
ttttgattat	aagaaataga	gtttccttga	agcttttagct	ggagatacag	caatagtgtg	360
gtgttccctac	aaatatcaca	gtgtattcaa	acataatttt	ctatcaaaaa	tcatttttgt	420
aaaagctgtg	tgttttttatc	caacttgtga	taataaatgt	tctttatttt	agaacaaana	480
aaaaaaaaaa	aaaaaaaaaa	a				501

<210> 225

<211> 295

<212> DNA

<213> Homo sapien

<400> 225

cctgtatagg	gcctggtttcc	ccacacatgc	ctattttctga	agaggcttct	gtcttatttg	60
aaggccagcc	catatccagc	tactttaaca	ccaggtttat	ggaaaatgtc	aggaaaaaaa	120
aaaaaaaaaa	catatgcact	cacacaatac	ccaaacatca	raattagaag	ggcataaaac	180
agggggcttt	ataggctgaa	aaatatctta	ratttccaraa	cagaatacca	atcaaataatt	240
gaaaattcct	ttgttcgaaa	cacaaagatg	ttttgttttt	aatgggagtt	ttttt	295

<210> 226

<211> 372

<212> DNA

<213> Homo sapien

<400> 226

agatttcctgg	cttagagcat	gagagcattg	aaggaccaat	agcaaactta	tcagtacttg	60
gaacagaaga	acttcggcaa	cgagaacact	atctcaagca	gaagagagat	aagttgatgt	120
ccatgagaaa	ggatattgag	actaaacaga	tacaaaatat	ggagcagaaa	ggaaaaccca	180
ctggggaggt	agaggaaatg	acagagaaac	cagaaatgac	agcagaggag	aagcaaacat	240
tactaaagag	gagattgctt	gcagagaaac	tcaaagaaga	agttattaat	aagtaataat	300
taagaacaat	ttacacaaat	ggaagttcaa	attgtcttaa	aaataaatta	tttagtccgt	360
atgaaatgaa	at					372

<210> 227

<211> 599

<212> DNA

<213> Homo sapien

<400> 227

ggcccccgtc	gggggagcgc	cttcgggcct	tctgggcatg	tctgccatat	ggctccaggt	60
ttgtttttct	ccccggcact	ctgacgggga	gggctcccg	catctcctgg	catccgggta	120
gaggacgcgg	aggatgctga	gctgctggcg	cactgcagca	caactagaga	tgtacggatg	180
cccccatctt	gatcttacag	aatcagaggt	acagccgcga	gaaagagtca	agaacagaca	240
gagtcgcttg	aggatccagg	aggggtgtttg	ctgcgttgac	aacagactac	accctcacag	300
tttgcctctgc	tcttccaaca	ccagtggaaag	atgatcacat	cccagggatc	agtgtcgttt	360
agggatgtga	ctgtgggctt	cactcaagag	gagtggcagc	atctggaccc	tgctcagagg	420
accctgtaca	gggatgtgat	gctggagaac	tacagccacc	ttgtctcagt	agggatttgc	480
attcctaaac	cagaagtgat	tctcaagttg	gagaaaggcg	aggagccatg	gatattagag	540
gaaaaatttc	caagccagag	tcactctggaa	ttaattaata	ccagtagaaa	ctattcaat	599

<210> 228

<211> 343

<212> DNA

<213> Homo sapien

<400> 228

aaagtaaatt	gtatgaaaaa	ttcatttctt	caattgcatt	agccacattt	tgagtattca	60
tgtggctggg	agattctgta	ttagcacaaa	gatatggaac	atttccatca	ccacagaaaag	120
ttctgttggg	cagcactgca	ttagaatatt	ttcatactgc	tcttctctca	ttaatttttg	180
ttgttaaatgt	tgatgtcttc	attggatggg	tcataatgtt	ccatgaaacc	gctcaagtac	240
acaattgtat	gttcttttga	tcccttacca	caaatatctc	gctctgctca	tttcttttgc	300
agcttccctat	aaagtttgc	ttcttcaaaa	aaaaaaaaaa	aaa		343

<210> 229

<211> 417
 <212> DNA
 <213> Homo sapien

<400> 229

ctcaagctgc	agtccaccgg	gtatggcttc	ggatggcttc	cccaaggag	aggatgga	60
ggaggtgaag	aaaactgaga	tttcaagtat	gggagagttt	ttactatctc	cattcctgga	120
ttaaaagtgc	tgaaaaagtc	cacagttaaa	cattccttta	ttcaccttat	ggctcccaag	180
aaaagcattc	ttcctctgga	gtactgggtg	actaagggga	caatacacca	aatttggtga	240
gtttacaatc	aagtctacta	aggttggact	tccttatcag	tttggcagag	tcccagggca	300
gaataatcat	ccatctacag	gtctctgttt	cctctccctc	cgcagcagtg	gagagcatcc	360
cagtgtttgg	ggcactgtgt	tcctcttctg	ccttgcacca	gaccttgga	gccttgg	417

<210> 230
 <211> 462
 <212> DNA
 <213> Homo sapien

<400> 230

gaaataccag	aagagaaagt	ttcattgtgc	aaatctaact	tcatggcctc	gctggctgta	60
ttccttatat	gatgctgaga	ccttaattgga	cagaatcaag	aaacagctac	gtgaatggga	120
cgaaaatcta	aaagatgatt	ctcttccttc	aaatccaata	gatttttctt	acagagtagc	180
tgcttgtctt	cctattgatg	atgtattgag	aattcagctc	cttaaaattg	gcagtgctat	240
ccagcgactt	cgctgtgaat	tagacattat	gaataaatgt	acttcccttt	gctgtaaaca	300
atgtcaagaa	acagaaataa	caacccaaaa	tgaaatatc	agtttatctt	tatgtgggcc	360
gatggcagct	tatgtgaatc	ctcatggata	tgtgcatgag	acacttactg	tgtataaggc	420
ttgcaacttg	aatctgatag	gccggccttc	tacagaacac	ag		462

<210> 231
 <211> 328
 <212> DNA
 <213> Homo sapien

<400> 231

ctgtgggttt	tcttaaaccg	ccctcatctg	gttgaagccc	tagtgtttct	ttctcacatc	60
agaggcaaat	gcattggggg	gggtctggtt	tggacaataa	atttcctctg	gtttggacca	120
agaaaaacag	gattctttga	ccgctaacat	atatgtaaaa	agaaagtgtg	taaaaacaag	180
agttaaaatg	cttctaacag	tgtggtcctc	actgcacagg	acactggaat	tggcattcgg	240
ggttgtgtct	gtccatgtgg	tttcgttgta	tgtcatgtgc	tctcagctca	gacagagaca	300
tccaattgac	ttctgacttg	gggcattt				328

<210> 232
 <211> 595
 <212> DNA
 <213> Homo sapien

<400> 232

cgccaatttt	agcaaataag	agattgtaaa	agaagcagat	tgaatgaaga	attttttagct	60
gtgcagatag	gtgatgttgg	gatggaaaa	gctaataaac	taccctttct	tttatcaagt	120
aattaaaata	aatctacata	aagaacccaa	aaggctgttt	tataaaaagt	aaatatccag	180
tatttcagag	ggccaggcaa	gagcacttca	gatgaggcag	tcaaaatcat	ttttttccag	240
tgaggataga	ccacaagtgg	gtggtgagac	cattgaaagc	ctttatcaac	tgaagagtcc	300
atttaacaga	ataatttgtg	ggaagactgg	aatagggctg	aataaatgtg	tttgaatctc	360
taattttata	ctttcttttc	ctgaggaact	tgattttttc	gtccctggat	cgccttgtea	420
taattgggtc	tgttcctttt	actaccactc	ttgagtccat	atatgaaatc	attaaagtgg	480

gatgatcagt	tttttataaa	aatatatatt	tttgtccaag	aaaaaaaaaa	gcatacatat	540
gtgattatgg	ctaaatcaaa	ggtaactgga	atgtatatac	ttttgcta	gttcc	595

<210> 233
 <211> 600
 <212> DNA
 <213> Homo sapien

<400> 233						
atgaaggtaa	actctaaaat	cttcataagg	caacaaagaa	aatttatcct	tcacacttat	60
ttctagaaag	cagcagggct	tatttcctag	attgcttaca	atgaagctag	aatatctgcg	120
ataactgtag	agtttcaaaa	aggatcccta	gggctacttc	tacgttctcc	ttaccagttg	180
agcactctcc	ataatttcca	gacgggtcat	ggggggagaat	gatagaaatg	agcgtgggaa	240
gaaagacaat	gaaattagaa	atgggtgaga	cacatgggtg	tagaatgcta	agagcagggg	300
tcaggacaat	caaccaggtg	tctaggaagg	gtcaagtcac	cagtgtcatc	tgctgaccac	360
tgttaggaag	aaataaactc	aaaggaaaca	ccacatTTTT	ccaattaaac	tcaaattctat	420
tgacttgtgg	tggttctttg	atgttgtggg	gactgctata	acagaaacca	attggatttt	480
caagggcaag	aaactttgcc	actgaataag	atgatgtcat	ccttcctgat	aacaaatagg	540
aatgggtggt	cagctctaaa	cagcgtggac	tgagggagtt	gcttttctac	aatattactt	600

<210> 234
 <211> 500
 <212> DNA
 <213> Homo sapien

<400> 234						
aaatttcctaa	ttcttttact	atctttctcaa	cttttcccaa	agataaaaata	aatttcacat	60
aatttcattgg	aggggaaatg	gtagtgtgaa	aaaactacct	caagtagcaa	tcaccgtctg	120
cagtgttttc	tcactttctg	ttctgcaatt	gcaatcacac	ttccaaaaag	aaaagcaaat	180
gtttgctaaa	ccatagacag	acaacctctt	tgtgactggg	attataagg	ttataatgaa	240
aacttatcaa	atataaaagg	tgctccctct	tgaaaatgtg	tattttat	gaagtgttga	300
gtaagaggtg	agtgtttggc	aattttcaac	actccctca	aaaatctccc	aaagtgtgaa	360
aaaagtcagt	ttagtataat	tccaagcact	taaatgcttc	attgagggcc	agttgatata	420
cgcaatgcac	taatgtgtaa	aaattaaccg	aatgcaacta	ttttataatg	gagagctctt	480
accttttctt	tcacgttttt					500

<210> 235
 <211> 159
 <212> DNA
 <213> Homo sapien

<400> 235						
aaaattttaca	gataaaggca	gttcaatact	gccactgaga	agtacatctc	ttaacatata	60
caacttttcag	gccacagttt	tgaaggctcg	aagtatttaag	ttgggttgat	gaattagtcg	120
gttggcactt	acgaacacat	ttattgcctt	gccatcttt			159

<210> 236
 <211> 254
 <212> DNA
 <213> Homo sapien

<400> 236						
aaataagtga	ataagcgata	tttattatct	gcaaggTTTT	tttgtgtgtg	tttttgtttt	60
tattttcaat	atgcaagtta	ggcttaattt	ttttatctaa	tgatcatcat	gaaatgaata	120
agagggctta	agaatttgkc	catttgcatt	cggaaaagaa	tgaccagcaa	aaggtttact	180

aatacctctc cctttgggga tttaatgtct ggtgctgccg cctgagtytc aagaattaaa 240
gctgcaagag gact 254

<210> 237

<211> 591

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(591)

<223> n = A,T,C or G

<400> 237

tttttttttt	tttttttttt	ttttttttct	atttttactt	tttctcaagt	ttaatgtara	60
catacaaraa	aacatcaagc	aatgtttatt	gkgcaattcc	aatcattatt	tgcaraatct	120
tggtttaaag	tcagtyttta	tagccatttc	aactgcttgg	tttaaacaaa	aagcaacaat	180
ctggttatyt	acctataaat	ttcatgggtat	ttytttaaac	actgaagtac	taaaagcact	240
gatgatttgt	attataattt	ttaaaatatt	taaaacctac	acagatttca	taratcattc	300
ctttttataa	ataatcaaaa	taatttgatt	atytggaaaa	aaaaattctt	gaaacaragc	360
cctttccagg	tatyttcaat	ctctgtaaaa	cccccacccc	caaacagagt	aratgatgaa	420
ataaggattt	ctcagttgcc	caagactgtc	tgaaatttaa	ggttgaaaaa	tggactggcg	480
tttttcatgt	ttcctgngaa	ttcanagctt	acaggtggca	tcaaaaactca	aatctctggg	540
atggctttac	atggctttca	ccttgatttg	tttcattttc	atttgcttct	t	591

<210> 238

<211> 252

<212> DNA

<213> Homo sapien

<400> 238

aaatggcttt	tgccacatac	atagatcttc	atgatgtgtg	agtgtaatte	catgtggata	60
tcagttacca	aacattacaa	aaaattttat	ggcccaaaat	gaccaacgaa	attgttacaa	120
tagaatttat	ccaattttga	tctttttata	ttcttctacc	acacctggaa	acagaccaat	180
agacattttg	gggtttttata	ataggaattt	gtataaagca	ttactctttt	tcaataaatt	240
gttttttaat	tt					252

<210> 239

<211> 153

<212> DNA

<213> Homo sapien

<400> 239

ccacaataaa	gtttacttgt	aaaatttttag	aggccattac	tccaattatg	ttgcacgtac	60
actcatttga	caggcgtgga	gactcattgt	atgtataaga	atattctgac	agtgagtgc	120
cggaggtctc	tggtgtaccc	tcttaccagt	cag			153

<210> 240

<211> 382

<212> DNA

<213> Homo sapien

<400> 240

aaaaaaaaa	ccatctaaaagt	gttttttaaat	atatatatatt	tttccaaagg	aagaaatttc	60
ttgctttttac	tcagggaataa	aaaaaaatta	aggtacattt	gagtagaatg	atttcattca	120

aaagagttct	ttcaggagac	atctgtgatt	cactgcattg	tttttatttt	cttctttttc	180
ctcttctttt	ccaacatttc	taccattttc	ctcttcttgg	ttgatatcag	gccactttct	240
tttggtgctt	tcttactgtc	acctgttaaa	ccgcgtttct	ttgtgttagg	ttttgaccgc	300
ttttcttctt	tgtgcactgt	gtcaccaggc	tcctttttgc	caattttgga	ctgttcttta	360
cttacaggag	aaggctctgc	ag				382

<210> 241

<211> 400

<212> DNA

<213> Homo sapien

<400> 241

ggcatgagcc	accgcgccc	gcccattctt	ttacttttat	aaatagagat	gaagtttcac	60
catgttgccc	aggctggtat	cgagctcctg	ggctcaagcg	atccccaac	cttggccttc	120
caaagtgcctg	ggattacaag	cgcgagccac	cgaaattatt	cttaactagc	aagactaggc	180
tctgacatca	catecttata	gttacatccc	tttaagcagg	gttcagccac	tcactctgca	240
cctggagaac	ttgatggtta	tccctcgaag	tgacagtcct	gcaaatgaca	aaaacactcc	300
aaatctatta	ggttggtgca	aaagtaatta	cgctttttgc	cactgaaagt	aagtcaccaca	360
ggaccctgag	ggaaatggga	gggtggggta	tacatagcag			400

<210> 242

<211> 75

<212> DNA

<213> Homo sapien

<400> 242

actcacatat	gcagacctga	cactcaagag	tggctagcta	cacagagtc	atctaatttt	60
tgcaacttcc	tgtgg					75

<210> 243

<211> 192

<212> DNA

<213> Homo sapien

<400> 243

gctccacatt	tgtagcgaac	actttgactc	caaagagaag	gaggaagaca	aagacaagaa	60
ggaaaagaaa	gacaaggaca	agaagggaagc	ccctgctgac	atggggagcac	atcagggagt	120
ggctgttctg	gggattgccc	ttattgctat	gggggaggag	attggtgcag	agatggcatt	180
acgaaccttt	gg					192

<210> 244

<211> 616

<212> DNA

<213> Homo sapien

<400> 244

aattttatag	caatatactg	accatttctaa	aaataacaaa	atacatgttg	ctctcaacta	60
catagttaaa	aaaggtagta	aattctctta	cccaaaatag	aggaggggtg	ggctagtgag	120
ctgctcaaac	atttgtaaca	aataaaaaatg	tatctatata	catataatga	tcattgtttc	180
atagcctaaa	atcaccatac	aaaatcta	aataaaaattg	tgtcgtgttc	aggagttggg	240
aagccaacac	attaaattaa	caaagtattt	ttggtatatg	taaataatgg	gatagaatct	300
ctcgaatcag	gattgtccca	gaagttctaa	ggcagatgtc	aatgacatgc	acattgtcca	360
tgttcagtaa	ttttcaaaga	ctagaataaa	ctatgtaaac	tattcaatac	aattcaatat	420
tacttaactg	ctaaaaagta	cttcaagatc	ttgcactgcc	ttgagtggag	ataatcaa	480
tagtaattgg	aaaatagctg	taatagcagg	cactgaagaa	ttctgacaaa	taccaataa	540

ctgtttgttt ttaccaaata aactggtaag atgatatcac aaaggggttt aagttatttt 600
gctatacaag gttttt 616

<210> 245

<211> 165

<212> DNA

<213> Homo sapien

<400> 245

ttggaacagt ggattaaaat ccagaagggg aggggtcatg aagaagaaac caggggagta 60
atttcttacc aaacattacc aagaatatg ccaagtcaca gagccagat tatggccgc 120
taccctgaag gttatagaac actcccaaga aacagcaaga caagg 165

<210> 246

<211> 229

<212> DNA

<213> Homo sapien

<400> 246

tgtactggat cctccaggt gggggcgact ctcacctgac tattacaata gcctcctaag 60
tggtttcctt acttgcaacc ttgccgtat aatatctatc ctccacacag caggcagggc 120
gatcctttta gaatagaagt tagatcatga aaatgctctg ctctgatccc tgcaaaagct 180
cgccacctcc ttacagtcac cgctgaactc gtagcagagg ttcaggagg 229

<210> 247

<211> 338

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(338)

<223> n = A,T,C or G

<400> 247

ggaaaccgtg tgtacttata ctggatgatg ccaccagtgc cctggatgca aacagccagt 60
tacaggngga gcagctcctg tacgaaagcc ctgagcggta ctcccgtca gtgcttctca 120
tcaccagca cctcagcctg gtggagcagg ctgaccacat cctctttctg gaaggaggcg 180
ctatccggga ggggggaacc caccancagc tcatggagaa aaaggggtgc tactgggcca 240
tgngncagc tctgcagat gctccagaat gaaagccttc tcagacctgc gcactccatc 300
tcctccctt ttcttctctc tgtggtggag aaccacag 338

<210> 248

<211> 177

<212> DNA

<213> Homo sapien

<400> 248

tgaaaacaaa tgaattctca actcctacgg ttcatttaga gtttagagaa aatttccatc 60
attgtcatca ttgaactgtg aacctgggaa gccagatcat gattaacact gacatcaagt 120
ttcaagttgc agatcaatgc acccagtgtt cagatgaggc aaacttctcc gtgacaa 177

<210> 249

<211> 263

<212> DNA

<213> Homo sapien

<400> 249

aaagtaatga	ctttattaat	aaatatacat	ccatatgatg	atgtagatac	aatcatgaa	60
cactactcca	ttcccataca	cataattgca	cacgagtagc	tcaagtccat	ggacataaaa	120
acatacacag	tatctattca	gactttttac	agcagaggac	agcgtgctta	ttatcagtta	180
attggttaatt	attttctcca	aaattacctg	tggaaaaaag	aaattctgaa	aacttaaaaag	240
aatcaaagtg	atctgattac	ttt				263

<210> 250

<211> 333

<212> DNA

<213> Homo sapien

<400> 250

aaaaaaaaa	acagcgtaaa	tattagccca	caagagcagt	cctaaacaat	cacaattaca	60
ctgtactacc	caagaagact	gtttattgtg	aagcatttac	ctttcaaaaa	atcattacat	120
ttctatttct	tgggtggagca	gcacattgtg	gagtgtgatt	cttaattctt	cattgagttt	180
gtcaatagga	cattgatgct	ggatagggtg	tcttttggtt	ttatgcctca	gaccatcttg	240
tgagattggt	tgcctatctc	ataatacagt	tttatgcaga	aagggtgaaa	ctatgtaaat	300
ggtttttatg	gaaattatca	gttacaatat	ttt			333

<210> 251

<211> 384

<212> DNA

<213> Homo sapien

<400> 251

aaaccatttg	tacaaaactt	ctataaat	ttctctctct	ttctctctta	tgtacaaaaa	60
tatcttaata	tatccccgaa	ctggtagga	tagatacaaa	tagatttttt	ataataaaaa	120
attcacaaaa	gattggaagc	attctataat	gaaaatggta	gaaaagacag	tgtgagggaa	180
gccatggggt	ttgggaatcg	ggccctggag	gagaagcaga	gtttcaaagg	gctgagaata	240
gcatagtttc	actgtaaacc	aatgtctaca	gcttattggg	gtgggggcta	ctgagacgaa	300
agacaccaac	tctgttctag	agggctaaga	actgcacttt	aagaaagggc	ggggaggtga	360
agggaccgca	gcaagaactt	tcag				384

<210> 252

<211> 211

<212> DNA

<213> Homo sapien

<400> 252

aaagcagtct	gaaaatggga	catctgtaga	gaaattcatt	tccttcttct	cctccggatg	60
tggaatggaa	gctttgaggg	aaggaaaagt	aggaaaagag	cgggatggga	tgggatggga	120
tgggatggga	tgggatagga	agagaggctg	gggaatgggc	agagaagggg	gtgctgagtg	180
tgctgtgaga	tagagcaaga	tcacaagaag	g			211

<210> 253

<211> 135

<212> DNA

<213> Homo sapien

<400> 253

aaaaattggt	tcttgacaag	ctgacttggc	acttaagtgc	acttttttat	gaagaaaaag	60
tacaatgaac	tgcttttctt	caagcaataa	ttgtttccaa	cttgtctggg	aattgtgtgt	120

ctggtaactg gaagg

135

<210> 254

<211> 361

<212> DNA

<213> Homo sapien

<400> 254

cctgtagccc	ctgctacacg	ggaggctgaa	gtgggaggat	cacttgaacc	aatgaggggtg	60
aggttacagt	gagcccagat	catgccacta	ctctacaggc	tgggtgataa	gagtgaagacc	120
ctgtatcaaa	aaaaagacaa	ggaaaaaaaa	aactgggccg	tttgtttttg	cagaatgtct	180
ctcaatttgg	acttttttgg	caggaataca	atacaagtga	tacaaatgct	tctttaacat	240
tagaacctgt	ataaaattac	cattacagac	cttgctattt	tacttatagg	taaatacactg	300
tttaccaagg	taagtctttt	gggaatttcc	aaaaatgaag	tccatggaca	gttaaaaact	360
g						361

<210> 255

<211> 331

<212> DNA

<213> Homo sapien

<400> 255

aaaaaaaaataa	ataatccacc	aacgtgattg	accttggcga	gatcatgttt	ctagtctata	60
cctcagtttc	cccatctgta	aagtgaaggat	aatgtcccac	cccatgtaac	tgtgggtgagg	120
accaactgca	acactgtgcc	tgcgagtctc	cttggaaaag	tgtaaggttc	tacacaaatg	180
gaaagtgate	tgatcacact	cagtgtcccc	agcccagcct	ttcagtgtcc	tggccctggg	240
gtgggggaca	atactctcct	cacccccttc	actagtcttc	atgaatagca	aggaggccat	300
aacataattt	ggtctaaacc	ccttcctttt	t			331

<210> 256

<211> 186

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(186)

<223> n = A,T,C or G

<400> 256

cctttggggc	cttgcacttt	gacctgcaat	ggggccacac	cagccttgct	tgtgtccacc	60
tggaaggact	gagggaggtt	ggcacgaacc	atgcctgggc	tcaggccggg	cccanagcac	120
ttgaccttgg	acgcactctg	cacatcatgc	acagggacct	tgaaaggact	gcctggcact	180
tgatgg						186

<210> 257

<211> 255

<212> DNA

<213> Homo sapien

<400> 257

ctggggctcg	tcaccgacct	ttgggggaact	gggctacggg	gaccacaagc	ccaagtcttc	60
cactgcagcc	caggaggtaa	agactctgga	tggcattttc	tcagagcagg	tcgccatggg	120
ctactcaaac	tccttgggtga	tagcaagaga	tgaaagtggg	actgagaaaag	agaagatcaa	180
gaaactgcc	gaatacaacc	ccgaaccct	ctgatgtctc	cagagactcc	tccgactcca	240

cacctctcgc ggcag

255

<210> 258

<211> 604

<212> DNA

<213> Homo sapien

<400> 258

ctgaatttgc	aatggagttt	ggtgggtgcaa	tcggtattga	ttagtttggc	atagacagat	60
gcagcagttt	agagcaaaat	cgagaaaatg	atTTTTTTTT	tcctccttga	tttcttggca	120
gaagatatct	tactttttca	gcaaactttt	cttttaacac	taaagcagcc	tagggcaatg	180
ccagatactt	agagcttttc	tcttgattat	aagtagaaat	gggggtgtct	gggctagagg	240
tggaggggtg	atgtgctgtc	gtcacagtct	agctggcagc	aagcaaggca	aaagcagaga	300
ctgctctaga	agcggttcca	agcagcagag	acgtcaggaa	aggcattctt	tagtaccaac	360
ctctatgctt	taatagttgc	ttgttaagct	gcttcatggg	ttgagacaaa	ctaccagcac	420
ttcaaagagc	tcagttctct	gctcaactct	cttctctagt	tacattatct	tttttccttc	480
aggagactga	ggcaggaaaa	tcgcttgaac	tcaggaggct	gaggccgcag	tgagccaaga	540
tcacaccacc	gcactccagc	ctgggccttg	caaagtgcta	ggattacagg	aatgagccac	600
cagg						604

<210> 259

<211> 429

<212> DNA

<213> Homo sapien

<400> 259

aaaaatgtct	gtatcgagat	cttccagttt	gaagtcttcc	tcctctgtgt	cttcccaagg	60
ctctgtggca	agctccactg	gttctcccg	ttccatcaga	accactgact	tcacacaatc	120
tggctatccc	aagtacctgg	gcacccccca	cctggaactg	tacttgagtg	actcacttag	180
aaacttgaac	aaagagcggc	aattccactt	cgctgggtatc	aggctccggc	tcaaccacat	240
gctggctatg	ctgtcaagga	gaacactctt	tactgaaaac	caccttggcc	ttcattctgg	300
caatttcagc	agagttaatt	tgtttgctgt	tagagatgta	gcactttatc	cttccatca	360
gtaactgctc	cgtgttcaga	ctcctgggtt	cttccaggct	tacagtggac	atcatcagct	420
tcctgcttt						429

<210> 260

<211> 385

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(385)

<223> n = A,T,C or G

<400> 260

ctgcaacaca	tgcagacca	gtctcagcct	tctcctcggc	agcactcccc	tgtcgccctct	60
cagataacat	cccccatccc	tgccatcggg	agcccccagc	cagcctctca	gcagcaccag	120
tcgcaaatac	agtctcagac	acagactcaa	gtattatcgc	aggctcagtat	tttctgaana	180
cgcataatgg	agacggattt	gcgtatacca	aggagagtgg	cataggaggg	aaaagcatat	240
gtggctgaaa	cctgtaagtt	ggtgttgggt	atgcagaaat	gtgtaacaga	tcaaacggct	300
ctctcaagtg	tctattanat	aggcaataag	aactgcagtg	tagctgagta	acatctttta	360
gctgactata	aatcactttg	ttttt				385

<210> 261

<211> 230
 <212> DNA
 <213> Homo sapien

<400> 261

ctgtacttggg	tctcttcagg	tggggcgac	tctcttcagg	ctcttcacac	agcttcctaa	60
gtgggtttccc	tacttgcaac	cttgcccgtg	taatatctat	cctccacaca	gcaggcaggg	120
cgatccttta	agaatagaag	ttagatcatg	aaaatgctct	gctctgatcc	ctgcaaaaagc	180
tggccacctc	cttacagtca	ccgctgaact	cgtagcagag	gttcaggagg		230

<210> 262
 <211> 198
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(198)
 <223> n = A,T,C or G

<400> 262

atgttaagta	aacatgaaat	ctatataaca	gaacaaaaat	tcactcttat	gtcaatgtca	60
gcgtgttaat	gtagatctat	ttactganac	agactctgta	gtggcagaga	gtggccttgt	120
taagccagga	ccctgttctg	caggctgtgg	gtagaagcta	ggaagtcctt	ggagtttcac	180
ccagcttttc	catgaatg					198

<210> 263
 <211> 157
 <212> DNA
 <213> Homo sapien

<400> 263

aaaatatatt	tctaaacaga	atggggccgac	tcagtcacag	taactgttga	tctccatagt	60
agagcaaccc	acaaagacag	aactgatttt	tttcccataa	tcaggggtga	aaaatataca	120
acttgtttct	gaacccaaaac	cacaatttct	gcagttt			157

<210> 264
 <211> 290
 <212> DNA
 <213> Homo sapien

<400> 264

ctggctactc	caagaccctg	gcatgaggct	gaggacaact	tacaagggct	tcaccgaagc	60
agtggacctt	tattttgacc	acctgatgtc	caggggtggg	ccactccagt	acaagcgtgg	120
gggacctatc	attgccgtgc	aggtggagaa	tgaatatggt	tcctataata	aagaccccg	180
atacatgccc	tacgtcaaga	aggcactgga	ggaccgtggc	attgtggaac	tgctcctgac	240
ttcagacaac	aaggatgggc	tgagcaaggg	gattgtccag	ggagtcttgg		290

<210> 265
 <211> 234
 <212> DNA
 <213> Homo sapien

<400> 265

aaaaaaagga	aaggaaagag	aggaaaagaa	aataaaaataa	gacgatttat	tgcttctcct	60
------------	------------	------------	-------------	------------	------------	----

cagcaccctc	cttgggtctcc	tccctcaccg	agagagcttc	tagcttttcc	gccacttttt	120
cggcatgata	atTTTTgect	gaccttttct	ttctctctct	ttcgatctct	ttcctgcatt	180
cttcaaactt	tgttttgaat	ttctgtgcat	tctcagcatt	caggaagcgg	atgg	234

<210> 266
 <211> 335
 <212> DNA
 <213> Homo sapien

<400> 266	
gtccctcatca	tcccagtttg
ggttggaaga	cgctgagaga
gatgcccata	caggagaagg
gatggcagcc	cttccctcagc
acccacatca	tgtcttaaga
accaggtggg	aaaagcgctt
	ctgccagagt
	ccagg
	60
	120
	180
	240
	300
	335

<210> 267
 <211> 619
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(619)
 <223> n = A,T,C or G

<400> 267	
tggagctctg	acgaagggat
aggggccana	tcttcatggg
cgcctcattg	atgggcttgt
gagctcaaaa	gcaagggtgt
atctccctca	cacccaatgg
caagcaggct	ccctgcata
ctcctcatgg	aggaggaggg
atccccagct	tcttggagga
cggccccacc	tgcagaacat
acccanaga	ccatgtgtga
tgcctgggca	ncctctgcca
	60
	120
	180
	240
	300
	360
	420
	480
	540
	600
	619

<210> 268
 <211> 147
 <212> DNA
 <213> Homo sapien

<400> 268	
cctataaccc	agacaccagc
cagtgcact	cttctaccac
tttttgtttt	tgttttacaa
	acctttt
	60
	120
	147

<210> 269
 <211> 325
 <212> DNA
 <213> Homo sapien

<400> 269

ctgagctgta	ggaatggggt	cttggtacac	aagatagtat	tgttgagcta	gttttcgagc	60
tctgtgcaca	agcactctgt	aatcgggggc	catgccactg	tacaccaaac	ctatatgctt	120
ggtaattggg	tctactttgt	gtacacttcg	ctcatcatac	agaatggatt	tctgtttttt	180
ctcagttgct	aataccacac	catttgcagc	tttaattccc	acggacgggg	ctcctccagc	240
tacagcagcc	aaagcatatt	caattctggc	aaagttactc	gaagggctga	ctgtatgtag	300
cgaaaagctg	taccgcgcgt	ccgcc				325

<210> 270

<211> 428

<212> DNA

<213> Homo sapien

<400> 270

aaacatatgg	taaattaccg	agtgacacct	ctgggctaga	gacctctttt	gaggggagtt	60
tgcaaaactac	ggattcaatt	tctttaacag	ttatgaagtt	ctttaaagaa	cctgtttggt	120
attggggggg	tgtggtcacc	tgtgcttttc	tgagatttgg	ccctacatc	taagtgttg	180
aatgcatgtg	tgtagagttg	tttatgggtc	ttccctttct	tcttagaagg	gtctatagta	240
atatccccctg	ccttatccct	agtagtacta	atttgtgttt	tcttacttct	tgacaggcaa	300
acacatcaga	gcataagtgg	ttcctaattg	caagctgacc	tcctttgatc	tctgtcttct	360
acaggatatt	gacatgggac	ttctttatta	ccttttcagt	tcactgatac	cttcaaatag	420
ctttattt						428

<210> 271

<211> 206

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(206)

<223> n = A,T,C or G

<400> 271

cgtcccggag	cccacggngg	ncatggctgg	canagcgctc	tgcattgctg	ggctggctct	60
ggccttgctg	tcctccagct	ctgctgagga	gtacgtgggc	ctgtctgcaa	accagtgncc	120
cgtgccagcc	aaggacaggg	tggactgcgg	ctacccccat	gtcacccccca	aggagtgcac	180
caaccggggc	tgtgtctttg	actcca				206

<210> 272

<211> 83

<212> DNA

<213> Homo sapien

<400> 272

ctggcttccc	tgagaactca	acaatgcctt	ttcctgaggg	ccttctctga	tcacccacaa	60
tgactacagc	cctctctacc	tgg				83

<210> 273

<211> 472

<212> DNA

<213> Homo sapien

<400> 273

ctggagaagg	tgtgcagggg	aaacctgct	gatgtcaccg	aggccaggtt	gtctttctac	60
------------	------------	-----------	------------	------------	------------	----

tccgggacact	cttccttttgg	gatgtactgc	atgggtgttct	tggcgctgta	tgtgcaggca	120
cgactctgtt	ggaagtgggc	acggctgctg	cgacccacag	tccagttctt	cctgggtggcc	180
tttgccctct	acgtgggcta	cacccgcgtg	tctgattaca	aacaccactg	gagcgatgtc	240
cttggtggcc	tectgcaggg	ggcactgggtg	gctgccctca	ctgtctgcta	catctcagac	300
ttcttcaaag	cccgaccccc	acagactgt	ctgaaggagg	aggagctgga	acggaagccc	360
agcctgtcac	tgacgttgac	cctgggcgag	gctgaccaca	accactatgg	ataccgcac	420
tcctcctcct	gaggecgjac	cccgcccagg	cagggagctg	ctgtgagtc	ag	472

<210> 274
 <211> 205
 <212> DNA
 <213> Homo sapien

<400> 274						
ccaggcggcc	cgaggactta	cggtcggcac	ttctctgttc	tcccggtgta	gcgtgtgggtg	60
tcgcctgcat	gggtcgtacc	tggatgggtg	gtccaccatc	gacacggagg	ggctggattt	120
gtttctcagg	caatcctgta	ttttaatttt	agatgtattt	cctgaagcat	atttttcata	180
gaatgtagcg	tgtaaatagc	ttttt				205

<210> 275
 <211> 308
 <212> DNA
 <213> Homo sapien

<400> 275						
ctcctcgccc	tccccaccga	catcatgctc	cagttccagc	ttggattttac	actgggcaan	60
gtggttggaa	tgtatctggc	tcagaactat	gatataccaa	acctggctaa	aaaacttgaa	120
gaaattaaaa	aggacttgga	tgccaagaag	aaacccctta	gtgcatgaga	ctgcctccag	180
cactgccttc	aggatatact	gattctactg	ctcttgaggg	cctcgttttac	tatctgaacc	240
aaaagctttt	gttttcgtct	ccagcctcag	cacttctctt	ctttgctaga	ccctgtgttt	300
tttgcttt						308

<210> 276
 <211> 201
 <212> DNA
 <213> Homo sapien

<400> 276						
aaattaactt	tttcttgcaa	aatattcatt	tcattttttc	caagaaaatc	ttataaaggc	60
aaaaataaaa	ttttattttg	gcaaatgtca	tgaagtcgat	actggcagca	tatggagtta	120
gttaaaaaata	gacaacaact	gctagatata	ttcaaaaattc	tatttttttt	tctgagcata	180
gtcaaagaga	aatttttcatt	t				201

<210> 277
 <211> 520
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(520)
 <223> n = A,T,C or G

<400> 277						
aaaaaaaaag	tattcagcac	catttgctca	tnggtctttc	agagtttggt	cttaaagttt	60

ctggaacttt	cctgtctgta	aagtaacagg	aattactgag	ctacattgga	aagcctctct	120
gggacaggca	gtggggagtt	aagcagtcac	cataaaggaa	tcagtgtaca	ttcagcatgg	180
tgacttgact	acacaacaat	cccttccct	ctactgtagc	tcaagagaga	catgcttcta	240
accactgagg	tatgaggagt	ctcagactgt	tatttgctgt	tagaattggg	cttcccagct	300
aataacagta	catctctggc	acagatgcta	ttggctccta	atgtcctgtg	atcttaggaa	360
atagcttggg	cttagctcaa	cttattcaga	aactaaacgc	gtcttaactag	cttcaactact	420
ctggcagagt	aagggtatgc	tggtttagta	tctttataaa	atatatataa	tgtataggta	480
aatcatagtc	ttaaatcata	cctaaaatac	tgtatcattt			520

<210> 278

<211> 264

<212> DNA

<213> Homo sapien

<400> 278

cgcgccgggc	ggaactttcc	agaacgctcg	gtgagaggcg	gaggagcggg	aactaccccg	60
gctgcgcaca	gctcggcgct	ccttcccgcct	ccctcacaca	ccggcctcag	cccgcaccgg	120
cagtagaaga	tgggtgaaaga	aacaacttac	tacgatgttt	tgggggtcaa	acccaatgct	180
actcaggaag	aattgaaaaa	ggcttatagg	aaactggcct	tgaagtacca	tcttgataag	240
aacccaaatg	aaggagagaa	gttt				264

<210> 279

<211> 414

<212> DNA

<213> Homo sapien

<400> 279

aaacatacaa	taatttttat	tatggaaatt	aatctttaca	tacaaaatca	gctacgtaat	60
tttactttaca	aaacaataaa	aactgttctt	tactgtggca	acaaaagaag	cattttgaca	120
aatgaaaaaa	attaatgcaa	acaaattaaa	acaatgcttt	tctttttact	tgcttcaactg	180
tctctttctat	ttatttttcta	tgatcatttg	acacaaacat	ggattacttt	gatatctact	240
gaaacataaa	tgataagggt	cttaaaagggt	gaattaaaag	tctgggtggt	caatatttta	300
gaagctgaat	aaacaaaacg	aaattggggg	ttgtgattac	agaggattta	tcattttttc	360
cctttgtcca	tatgaaaata	tataatagaa	aattacccac	gggaaaacat	tttt	414

<210> 280

<211> 262

<212> DNA

<213> Homo sapien

<400> 280

ccaccatgcc	tggcctgctt	caattttttg	atgccacttt	gtaaacggca	cttaattatg	60
gaaaatagga	aaaagcaaaa	ctaaaataag	gaagaggata	tatatataac	ttttcacaat	120
ctctttttctg	atccccctta	gatgccaggt	caaccaggac	cacacacaga	tttcatttta	180
tttgtagagt	atatgaaaag	atttaatagt	ctcatgcatt	ttatttttacg	tatactgatt	240
tctacgtttt	gactgactat	tt				262

<210> 281

<211> 349

<212> DNA

<213> Homo sapien

<400> 281

ctgtgacccg	ggtgcatcag	tggatatagt	tgtgtctccc	catggggggt	taacagtcct	60
tgcccaagac	cgtttttctga	taatggctgc	agaaatggaa	cagtcactctg	gcacaggccc	120

agcagaatta	actcagtttt	ggaaagaagt	tcccagaaac	aaagtgatgg	aacataggtt	180
aagatgccat	actgttgaaa	gcagtaaacc	aaacactctt	acgttaaaag	acaatgcttt	240
caatatgtca	gataaaacca	gtgaagatat	atgtctacaa	ctcagtcggt	tactagaaag	300
caataggaag	cttgaagacc	aagttcagcg	ttgtatctgg	ttccagcag		349

<210> 282
 <211> 381
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(381)
 <223> n = A,T,C or G

<400> 282						60
aaacactaaa	tgaagcttct	cacaatttct	aattataaac	aaaaggctga	aaacagtatg	120
ggaaacaaag	tttcaaaaaca	aagaaaagtt	gagtaaaagg	tgccccctct	atggctcatc	180
tgaagaaaac	attttactca	gagaggcaaa	catttctgat	ctaggagtaa	gtttccctact	240
cactttgcaa	ggacccactc	attctgcana	aagacctaca	agtctttctg	gtctcaattg	300
caaagtacgt	gaaaatgtgt	atgaaagatc	taaaagctaa	atattagaat	aaggctaatt	360
gaaatcaaaa	ttgtgtgctg	gtctaaatat	acatcttcgg	cttcttcctt	tttagtaagt	381
atttttattt	cagatgtatt	t				

<210> 283
 <211> 543
 <212> DNA
 <213> Homo sapien

<400> 283						60
aatatagctc	ctccctaccc	ccaacaatgg	accctgccca	ttgcctccca	gttccttgat	120
cttcctaggt	tccacaactc	tctttttcct	tttagtttta	ttccctccag	ccaaacctct	180
cttattcaat	attttgagcc	aatgggggag	ttatgtagat	ttttttccct	acacattagc	240
tggccccctt	tatgaccaat	gactcataag	gcaagatgtg	tggtggcatc	ttcggacagg	300
cagcaggctt	taatagggca	gcctgggttg	gtggaggcaa	gcaaagctaa	ttggcatgcg	360
tgggaatcaa	accccaggcc	ctgggctcat	tagcccatgg	tcaaaacaac	tgagccagag	420
gaggtaataa	tttgcccaag	aatatcagta	gttcctttat	tagaagaaaa	tggtgatgat	480
ggaagtggg	gaatctgaat	tgccagagaa	tcttgggaag	agtaataagc	tcttagtctc	540
aacaaaaagt	gttttttcat	ctcagcgcgt	aaaggggtgt	atatgggaac	aaagaagtat	543
ttt						

<210> 284
 <211> 147
 <212> DNA
 <213> Homo sapien

<400> 284						60
aaactgggat	tttatctttg	attctccttc	agccctcacc	cctgggtctc	atctttcttg	120
atcaacatct	tttcttgctt	ctgtccctct	ctctcatctc	ttagctcccc	tccaacctgg	147
ggggcagtgg	tgtggagaag	ccacagg				

<210> 285
 <211> 316
 <212> DNA
 <213> Homo sapien

<400> 285
 cggccgaggt ctggttccac tctactccc tetetgetcg cagcacgtcg gccgccagct 60
 ctttgatgtg ttcccaggcc cgtgcacat gggcagattc caccgtgcga gaacagatgg 120
 caaagcgcag gacaaacttg tccctgaggt gacatggaac caagtggatt tttttggcac 180
 tgtttattct ttgcagaaga gcttcaatca ctttgttggg acccttttagc tgaagagaga 240
 caagccccag aatgacttcc acacagattt caaagcgggg atcctggcgc accagtgact 300
 caaactcatg ggacag 316

<210> 286
 <211> 322
 <212> DNA
 <213> Homo sapien

<400> 286
 cctggggagc ccttttagtgg ggtgggacct caggcagacc cccaaaccaa agggagccag 60
 atgcccagt tcaagtcatt agtgatatgt ggcagggctg acagagaaat aatcctggag 120
 gtctccaaag ctgctgggaa tggaaatggcg atgaaaagcg caggagtggg caggggtgtgg 180
 tgggtgatgg tggcctcact cagagtggac caaggcccca gctccttggc caaaaccaa 240
 gcccttgggc cgaagtttt tagcataaca tcttttgcag taaatctcgc catccttgtc 300
 tgccaggggtg gttgactcaa gg 322

<210> 287
 <211> 364
 <212> DNA
 <213> Homo sapien

<400> 287
 ctgcccacgc tcaaaaccaat tctggctgat atcgagtacc tgcaggacca gcacctctcg 60
 ctcacagtca agtccatgga tggctatgaa tcctatgggg agtgtgtggg tgcactcaaa 120
 tccatgateg gcagcacggc ccaacagttc ctgaccttcc tateccaccg tggcgaggag 180
 acaggcaata tcagaggctc catgaagggtg cgggtgccca cggagcgctt gggcaccctg 240
 gagcggctct acgagtggat cagcattgat aaggatgagg caggagcaaa gagcaaagcc 300
 cctctgtgt cccgagggag ccaggagccc aggtcagggg gccgcaagcc agccttcaca 360
 gagg 364

<210> 288
 <211> 261
 <212> DNA
 <213> Homo sapien

<400> 288
 aaaattataa ctactcattc tttcttttagc cttagttaat ttgagcagaa gccacaacaa 60
 gcaaaccaca ataaatttag aattggcaga aatccacatt aactcctctt cccaagtctc 120
 cacactacta ccatttacag ttgtagggtt gtaatgtata attatgtaat gcagaaacta 180
 gctttgactt gtgtaacgat gcactgtcaa agtaagcaaa gtaagaattg aaattccaca 240
 ttcccagaat ttaacactca g 261

<210> 289
 <211> 261
 <212> DNA
 <213> Homo sapien

<400> 289
 ctgagtgtta aattctggga atgtggaatt tcaattctta ctttgcttac tttgacagtg 60

catcggttaca caagtcaaag ctagtttctg cattacataa ttatacatta caaacctaca	120
actgtaaatg gtagtagtgt ggaaacttgg gaagaggagt taatgtggat ttctgccaat	180
tctaaattta ttgtgggttg cttgttctgg cttctgctca aattaactaa ggctaaagaa	240
agaatgagta gttataattt t	261

<210> 290
 <211> 92
 <212> DNA
 <213> Homo sapien

<400> 290	
ccactacccg aacttacagg tgccaaaaga agaaagggtg taaacggaga ccacctatca	60
ctcatcagaa cctaggatca tcacattcct tt	92

<210> 291
 <211> 287
 <212> DNA
 <213> Homo sapien

<400> 291	
ccatggctcc gctcagggcc cgggtcacct ccgagtcact ctgttccttg actgtctttg	60
tgtttctgta cctcaaggca ctgaagctgg aggactctgt ccatgectgt gtcaccctcg	120
tgtgggagcc tctgggctcg gcagggtccac atttcatgag ctgaggcgtg ggccagggcc	180
atctggaaag ggaactcggc ttttccagaa cgtgggtgat catctgtcgg gtgtgtgggtg	240
aacacgttca gttcatcagg gcctacgctc cgggaagggg cccccag	287

<210> 292
 <211> 270
 <212> DNA
 <213> Homo sapien

<400> 292	
ccattgtttc ctgctggcg aaggctcctt gaacatccct caccttcctc tcccgcctct	60
gccttctgct gggtaaaagg tggccttttc tctccagcct tgaattgttc cctgttggt	120
tcccaagggc ccactctgctg gtacagtcca cacttccaca gccaaagacc gagagggctt	180
tcactgccc aagcctctct cctgtgacct tgggattctg tcttggcaga atcctttgtc	240
agcggtcctt actctgtcct tcctgtttgg	270

<210> 293
 <211> 333
 <212> DNA
 <213> Homo sapien

<400> 293	
ccatgctcgt caacctgggtg tccactgctt gctacgtctc ctctctcttc ctgggctgcg	60
acactggccc tgtggctggg gttactgttc cctatggaaa cagcacagca cctggctcag	120
ccctggaccc ctactcgccc tgcaataata actgtgaatg ccaaaccgat tccttctctc	180
cagtgtgtgg ggcagatggc atcacctacc tgtctgctcg ctttgtggc tgcaacagca	240
cgaatctcac gggctgtgcg tgccctacca ccgtccctgc tgagaacgca accgtgggtc	300
ctggaaaatg ccccagtcct gggtgccaag agg	333

<210> 294
 <211> 123
 <212> DNA
 <213> Homo sapien

<400> 294
 ctgatacaaa tacagaaaac tctgcccatt atccaagaaa caaataatta agactaaaat 60
 gcaagctgat gtgttcgagc attgtagggc cactaaatag ccattctgtga ttcgtggcaa 120
 ttt 123

<210> 295
 <211> 311
 <212> DNA
 <213> Homo sapien

<400> 295
 ctgcatacag acatttgttt aggtcatctg gattatcttg attgtcacca tggcaactat 60
 ccacaaccag tgccataggtg tgtgagaaga gtgatacaat aatactgtgg catggtcatt 120
 tagctaatacc agtctaagcc taacagaaaac cttttccatc aaagtttttc agagaataac 180
 aacatctcat aagaggccag aggatggctt gtgcttaata tcacacctgt acagttagggc 240
 agtgcttccc aggctgtctg cttacatttt agcttgtctt acggttacat atggtttttag 300
 tatttttcatt t 311

<210> 296
 <211> 241
 <212> DNA
 <213> Homo sapien

<400> 296
 ctgcggaaga tctgcaacca cccctacatg ttccagcaca tgcaggagtc cttttccgag 60
 cacttggggg tcaactggcg cattgtccaa gggctggacc tgtaccgagc ctcgggtaaa 120
 tttgagcttc ttgatagaat tcttcccaaa ctccgagcaa ccaaccacaa agtgctgctg 180
 ttctgccaaa tgacctccct catgaccatc atggaagatt accttgcgta tgcgggcttt 240
 a 241

<210> 297
 <211> 295
 <212> DNA
 <213> Homo sapien

<400> 297
 aaacacaaga tgaaaatact ctgttctgtc caaagcatca cctaattggtg tgaggcatct 60
 cacttagctg tggagaagtc cttggaatta gatctcagaa agacagcttt aagacagtaa 120
 aaccttttgg caatgggcta attgccttaa aagaagagtt ctacctgaaa gaccttgcag 180
 gtggagaaat tgtcctacaa agattcttgg atatgttagt ggagataact gacatgggta 240
 gctgtgggtc aaccaggaac tgtcaacaac ctgattctctg caaaaccagg atgga 295

<210> 298
 <211> 347
 <212> DNA
 <213> Homo sapien

<400> 298
 ccaaaaataaa gcttcaggca agaggcaaag atccagtggg atatgggaga atgggtggagg 60
 accaacacct gctaccccag agagcttttc taaaaaaagc aagaaagcag tcatgagtgg 120
 tattcacctt gcagaagaca cggaaggtag tgagtttgag ccagagggag ttccagaagt 180
 tgtaaagaaa gggtttgctg acatcccagc aggaaagact agcccatata tccctgcgaag 240
 aacaaccatg gcaactcgga ccagcccccg cctggctgca cagaagttag cgctatcccc 300
 actgagtctc ggcaaagaaa atcttgcaga gtcctccaaa ccaacag 347

<210> 299
 <211> 268
 <212> DNA
 <213> Homo sapien

<400> 299
 aaaaagtaaa catgaaaaca tcacgaattg taccatgatt caagaataac ttttgtaata 60
 gaaaacacat gaccttttgc agtatagtgt gataccgaag taaaagtga agaaataaat 120
 gcaggaaagt ttaagtggat gtaagttttt ataaggaaag taataagagg aggctgcttt 180
 tgaaggctct ttgatcttcc atgatgataa tatcgttgca aagttcttta acttgatttc 240
 aagtaattag cagttgacca cttgggtt 268

<210> 300
 <211> 185
 <212> DNA
 <213> Homo sapien

<400> 300
 aaattggaga aggaagtttt cctgaagagc cagaatcctt gctaagtcatt ttagatccaa 60
 ctgaccatct ttatttctgt caaaaatctt catcatgggt ccggtgtatt cttccagttt 120
 agcctcagaa atggcctttc tgtgggtgaag aaagaggtct cggaggaagt tgcggagctc 180
 agcag 185

<210> 301
 <211> 75
 <212> DNA
 <213> Homo sapien

<400> 301
 aaaattggaa agtgggataa gaaatctaaa gtaaccagct tatctttgaa acaatattat 60
 tttgaaattg gcttt 75

<210> 302
 <211> 247
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(247)
 <223> n = A,T,C or G

<400> 302
 ccattgtctc tgaattgggt gcagaagaca agggcagagt ggctgcggcc cctattacct 60
 ttgtagcagc cacatcagaa agcagaagaa aacagtattt ctgaaggcat tgtttgaggt 120
 tgatctcagc actgaacgat ttcaagccct acgcaccana acagaaggag ggtggaggaa 180
 gtgatcanag ggaacgagct gtaggtttgc anaaatgtgt gaaacaaaa tgatcactgc 240
 ctacttg 247

<210> 303
 <211> 535
 <212> DNA
 <213> Homo sapien

<400> 303

ctgcttcaga	ggaaatcact	gaaaaataaa	gaaaaacccat	ccatgcatgg	ctgcatccag	60
tgtacctgta	atcctgaaga	aaaggtccta	attccttcca	tgtgaaatg	ctagctttgg	120
tttcagagag	agactttatt	gcaactgtga	ccaccgtcac	tggtagcac	tgtgttcgg	180
ccccagcgg	acttaaaaga	ctggaatgtg	gtagtggcgg	tcgttctcgg	tcagcaggga	240
gattctcggc	cagctcctga	gaggctcctc	tgggtagaaag	acttcaaaagt	ctatggagct	300
aaacttgaac	agtctgaaca	cttttatctt	tacttcaagg	gagtatccaa	gtataaacat	360
atcaatctgc	tctagtccac	atgtgtcgcc	tacagaattc	aggtgattca	tcatgaagct	420
caaaggatca	gaggatgtct	ccctggaaaa	caggagtcta	aaaagactgg	gaatgacctt	480
tttagtcttc	atttgttcat	aaacttcagt	gacttgatac	agcatgatga	acttt	535

<210> 304

<211> 522

<212> DNA

<213> Homo sapien

<400> 304

ccgcgcctgg	tctacaatca	cgttttatta	ttggctcgtc	tagtcatggg	atagagaagg	60
taaataagcaa	aatagaaaga	aaagggggaa	aaggtagaag	gcaaggggaa	aactattggt	120
tttagatctt	tatcctggtc	ctgtcaatga	tcaggtaatt	ggaaggatca	aaattaggcc	180
aaacttggtg	attgggccaa	aattgaacca	aagtttgtgt	caagaagacc	tggggcagag	240
atatgtgact	aaatcatttg	gaatatgccc	agaccccaag	aatatattatg	cccaacttga	300
atgctaacca	gaagtcctct	actgtagaag	attgtaaagg	tgtatatttt	ttgccccgac	360
accaaaatat	tgatgtattt	tccaacacca	attctccaat	tctctgacac	caactcgatg	420
ttcaacaatt	cagttatatt	ctgtcactaa	ttcctgcagc	tatcagcagg	ccccacaggt	480
aaaggattca	gtctcacaag	attgcccccc	caccacttcc	ag		522

<210> 305

<211> 165

<212> DNA

<213> Homo sapien

<400> 305

cctaaagcgc	tctcgcctga	agctcaaggg	gtccacaatg	atttgtttgt	caaagttatt	60
gagtgcata	gccagttctc	ctcctcctcc	acctggtgc	tgtgaggcat	cgtctgaggc	120
agtggcctgg	gctgcattgg	aaatgcctgt	gaccgcctgc	tgcag		165

<210> 306

<211> 294

<212> DNA

<213> Homo sapien

<400> 306

ctgcacctaa	gacatggccc	tggctaggcg	ggaacagctc	acagttagcg	tacattcaca	60
ggacacagtt	ggtgtccaga	aaagggggct	cagaacacag	tttctacaca	agcacttggc	120
acccacacga	cagagacgtc	actcaagcag	cacagccaca	aatagtttac	agcagctcat	180
gccccgcac	cgcccatgct	gggagactcc	ctgaaagggtg	ggcacctgcc	gtctatgagg	240
aggtgtctcc	ctccatcatt	aaccccaaac	cacacaatgt	gtgaggagag	cagg	294

<210> 307

<211> 181

<212> DNA

<213> Homo sapien

<400> 307

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aaaaatccat gacaccttga tagaaattag agtttacaca aacaaaaaag gaaccttcga      60
tattgccagc agctataaag tgaacgtact gagaccgaca ggacagcaag aaggcatttg      120
cacatttata tctgacaccc gaccatactt tcagtcacca gaatatcttc tctccagatt      180
t                                          181

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<210> 308
<211> 179
<212> DNA
<213> Homo sapien

```

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<220>
<221> misc_feature
<222> (1)...(179)
<223> n = A,T,C or G

```

```

<400> 308
aaggctgagg actgctggga gctcagatca gcccgagct actggctcat gggcagccaa      60
aaaatactgg atctgctgaa cgaaggctca gcccgagatc tccgcagtct tcagcgcatt      120
ggccccgaaga aggcccanct aatcgtgggc tggcgggagc tccacggccc cttcagcca      179

```

```

<210> 309
<211> 129
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(129)
<223> n = A,T,C or G

```

```

<400> 309
ctgccccgtt gcccgtagct gactcagntt cctcatcttc atctccatcc tcttctctac      60
catcaccttc ttcttctctc tcttctctct cccacacttc ttcttcttct tegtctacct      120
cattgtcag                                          129

```

```

<210> 310
<211> 390
<212> DNA
<213> Homo sapien

```

```

<400> 310
tgaggctggg ggagagccgt ggtccctgag gatgggtcag agctaaactc ctctctggcc      60
tgagagttag ctctctgccc tgtgtacttc ccgggccagg gctgccccta atctctgtag      120
gaaccgtggt atgtctgcat gttgcccctt tctcttttcc ctttctctgt cccaccatac      180
gagcacctcc agcctgaaca gaagctctta ctcttttcta ttccagtgtt acctgtgtgc      240
ttggtctggt tgactttacg cccatctcag gacacttccg tagactgttt aggttccccct      300
gtcaaataac agttaccac tcgggtccag ttttgttgcc ccagaaaggg atgttattat      360
ccttgggggc tcccagggca agggttaagg                                          390

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<210> 311
<211> 355
<212> DNA
<213> Homo sapien

```

```

<220>

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<221> misc_feature
 <222> (1)...(355)
 <223> n = A,T,C or G

<400> 311

ctctctctgtg ctgctgaagg tagattgctt gctccctcc cgtacacac cccaggcgt	60
gcatatccgc ctgttgagaa atgccgtgtc tagattgtgg acaagagcct gcgtgattat	120
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<211> 1633

<212> DNA

<213> Homo sapiens

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<211> 4235

<212> DNA

<213> Homo sapiens

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<212> DNA

<213> Homo sapiens

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<211> 1814

<212> DNA

<213> Homo sapiens

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<210> 320

<211> 3132

<212> DNA

<213> Homo sapiens

<400> 320

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atgtccccgc tgcagatctc tgacccttcc ggatccttcc ctactcgcc caccatggac 360
aactacccta agctggagga gatgatgctg ctgagcaacg gggctcccc gtctctcgcc 420
gcgcgcgggg ccccagaggg cagcggcagc aacagcagca gcagcagcag cgggggcggt 480
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gacacggggc agcagcccta cgagcacctg accgcagagt cttttcctga catctctctg 600
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agcagcttcc ctctctcagc tgtcaccaac tcttcagcg cctccacagg gcttctggac 1860

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ggagaggagg gttcctctta ggtcagatgg aggttctcag agccaagtc tccctctcta 2040
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tattcccttt gacttcagct gctgaaaca gccatgtcca agttcttcac ctctatccaa 2160
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<210> 321

<211> 2280

<212> DNA

<213> Homo sapiens

<400> 321

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tcgtttctca tctccttgat gttcctgttg tcttacttgt ttggatttta caaaagattt 240
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tactacatta attcggcagc ctggttcttc gcccttcacg ccacgctgct ctacattctc 420
catgccttca gcatctatta ccactgatgc acaggcgcca ggccaagggg gaaatgctct 480
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aacggaagat ccactaaaac gtccacggga ttaacagaac gtccttgacg actgagcgat 600
gacaccacac tttgtttgga catttaaat cactctgctg aataggagga agcttttctt 660
tttcttggga aaacaactgt ctcttgggaat tatctgacca tgaacttgct cttctagaca 720
actcacatca aagccctcac tccactaatg gagaatccta gccccactaa tgccaagtct 780
gtttggggat tttgctcag ctatgggctt ccctagagta ggtctagggg aatactcagt 840
ctgatctttt ttttgtttgt tttattttgt tttttttgag acggagtctc gctcttctct 900
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agcagctgcc ggacgcctgg gtcaggaatc caagacccca cctcttaagg actggttctt 1560

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cagaaagcac cctcagggaa aaaggtgaaa acattacatc cgtggattct cctgccacaa 1620
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<210> 322

<211> 1398

<212> DNA

<213> Homo sapiens

<400> 322

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ctaaccacaaa ggaattgaaa ggaaccactc attcattctt agacgacaaa atgcaaaaaa 180
ggaggccaaa gacttttggg atggatatga aagcatacct gagatctatg atcccacatc 240
tggaatctgg aatgaaatct tccaagtcca aggatgtact ttctgctgct gaagtaatgc 300
aatgggtctca atctctggaa aaacttcttg ccaaccaaac tggtcaaaat gtctttggaa 360
gtttcctaaa gtctgaattc agtgaggaga atattgagtt ctggctggct tgtgaagact 420
ataagaaaac agagtctgat cttttgccct gtaaagcaga agagatatat aaagcatttg 480
tgcattcaga tgctgctaaa caaatcaata ttgacttccg cactcgagaa tctacagcca 540
agaagattaa agcaccaacc cccacgtgtt ttgatgaagc acaaaaagtc atatatactc 600
ttatggaaaa ggaactcttat cccaggttcc tcaaatcaga tatttactta aatcttctaa 660
atgacctgca ggctaatagc cttaaagtgc tgggtccctgg ctgaagggaa ttaacagata 720
gtatcaaggc acgaaggaat gtgccagtat ggctccctgg gtgaacagct tggccttttt 780
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tgggtgcta atataaatgtg gatattgtat taaaatatat agaagcaatt tctgtttaca 1320
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<210> 323

<211> 1316

<212> DNA

<213> Homo sapiens

<400> 323

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gtgaaagaag cagtgaagggt ggccattgat gcaggatata ggacattga ctgtgcctat 180
gtctatcaga atgaacatga agtgggggaa gccatccaag agaagatcca agagaaggct 240
gtgaagcggg aggacctgtt catcgtcagc aagttgtggc ccactttctt tgagagaccc 300

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cttgtgagga aagcctttga gaagaccctc aaggacctga agctgagcta tctggacgtc 360
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aaaggtaatg ccatcggtgg aaaagcaacg ttcttggatg cctgggaggc catggaggag 480
ctggtggatg aggggctggt gaaagccctt ggggtctcca atttcagcca cttccagatc 540
gagaagctct tgaacaaacc tggactgaaa tataaaccag tgactaacca ggttgagtgt 600
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<210> 324

<211> 200

<212> PRT

<213> Homo sapiens

<400> 324

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Met Ala Lys Gly Asp Pro Lys Lys Pro Lys Gly Lys Thr Ser Ala Tyr
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Ala Phe Phe Val Gln Thr Cys Arg Glu Glu His Lys Lys Lys Asn Pro
      20                                25                        30

Glu Val Pro Val Asn Phe Ala Glu Phe Ser Lys Lys Cys Ser Glu Arg
      35                                40                        45

Trp Lys Thr Val Ser Gly Lys Glu Lys Ser Lys Phe Asp Glu Met Ala
      50                                55                        60

Lys Ala Asp Lys Val Arg Tyr Asp Arg Glu Met Lys Asp Tyr Gly Pro
      65                                70                        75                        80

Ala Lys Gly Gly Lys Lys Lys Lys Asp Pro Asn Ala Pro Lys Arg Pro
      85                                90                        95

Pro Ser Gly Phe Phe Leu Phe Cys Ser Glu Phe Arg Pro Lys Ile Lys
      100                               105                        110

Ser Thr Asn Pro Gly Ile Ser Ile Gly Asp Val Ala Lys Lys Leu Gly
      115                               120                        125

Glu Met Trp Asn Asn Leu Asn Asp Ser Glu Lys Gln Pro Tyr Ile Thr
      130                               135                        140

Lys Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Val Ala Asp Tyr
      145                               150                        155                        160

Lys Ser Lys Gly Lys Phe Asp Gly Ala Lys Gly Pro Ala Lys Val Ala

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	165		170		175
Arg Lys Lys Val Glu Glu Glu Asp Glu Glu Gln Glu Glu Glu Glu Glu	180		185		190
Glu Glu Glu Glu Glu Glu Asp Glu	195		200		
<210> 325					
<211> 263					
<212> PRT					
<213> Homo sapiens					
<400> 325					
Met Phe Arg Asn Gln Tyr Asp Asn Asp Val Thr Val Trp Ser Pro Gln	5		10		15
Gly Arg Ile His Gln Ile Glu Tyr Ala Met Glu Ala Val Lys Gln Gly	20		25		30
Ser Ala Thr Val Gly Leu Lys Ser Lys Thr His Ala Val Leu Val Ala	35		40		45
Leu Lys Arg Ala Gln Ser Glu Leu Ala Ala His Gln Lys Lys Ile Leu	50		55		60
His Val Asp Asn His Ile Gly Ile Ser Ile Ala Gly Leu Thr Ala Asp	65		70		75
Ala Arg Leu Leu Cys Asn Phe Met Arg Gln Glu Cys Leu Asp Ser Arg	85		90		95
Phe Val Phe Asp Arg Pro Leu Pro Val Ser Arg Leu Val Ser Leu Ile	100		105		110
Gly Ser Lys Thr Gln Ile Pro Thr Gln Arg Tyr Gly Arg Arg Pro Tyr	115		120		125
Gly Val Gly Leu Leu Ile Ala Gly Tyr Asp Asp Met Gly Pro His Ile	130		135		140
Phe Gln Thr Cys Pro Ser Ala Asn Tyr Phe Asp Cys Arg Ala Met Ser	145		150		155
Ile Gly Ala Arg Ser Gln Ser Ala Arg Thr Tyr Leu Glu Arg His Met	165		170		175
Ser Glu Phe Met Glu Cys Asn Leu Asn Glu Leu Val Lys His Gly Leu	180		185		190
Arg Ala Leu Arg Glu Thr Leu Pro Ala Glu Gln Asp Leu Thr Thr Lys	195		200		205
Asn Val Ser Ile Gly Ile Val Gly Lys Asp Leu Glu Phe Thr Ile Tyr					

210 215 220
 Asp Asp Asp Asp Val Ser Pro Phe Leu Glu Gly Leu Glu Glu Arg Pro
 225 230 235 240
~~Gln Arg Lys Ala Gln Pro Ala Gln Pro Ala Asp Glu Pro Ala Glu Lys~~
 245 250 255
 Ala Asp Glu Pro Met Glu His
 260

 <210> 326
 <211> 539
 <212> PRT
 <213> Homo sapiens

 <400> 326
 Met Pro Glu Asn Val Ala Pro Arg Ser Gly Ala Thr Ala Gly Ala Ala
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 Gly Gly Arg Gly Lys Gly Ala Tyr Gln Asp Arg Asp Lys Pro Ala Gln
 20 25 30
 Ile Arg Phe Ser Asn Ile Ser Ala Ala Lys Ala Val Ala Asp Ala Ile
 35 40 45
 Arg Thr Ser Leu Gly Pro Lys Gly Met Asp Lys Met Ile Gln Asp Gly
 50 55 60
 Lys Gly Asp Val Thr Ile Thr Asn Asp Gly Ala Thr Ile Leu Lys Gln
 65 70 75 80
 Met Gln Val Leu His Pro Ala Ala Arg Met Leu Val Glu Leu Ser Lys
 85 90 95
 Ala Gln Asp Ile Glu Ala Gly Asp Gly Thr Thr Ser Val Val Ile Ile
 100 105 110
 Ala Gly Ser Leu Leu Asp Ser Cys Thr Lys Leu Leu Gln Lys Gly Ile
 115 120 125
 His Pro Thr Ile Ile Ser Glu Ser Phe Gln Lys Ala Leu Glu Lys Gly
 130 135 140
 Ile Glu Ile Leu Thr Asp Met Ser Arg Pro Val Glu Leu Ser Asp Arg
 145 150 155 160
 Glu Thr Leu Leu Asn Ser Ala Thr Thr Ser Leu Asn Ser Lys Val Val
 165 170 175
 Ser Gln Tyr Ser Ser Leu Leu Ser Pro Met Ser Val Asn Ala Val Met
 180 185 190
 Lys Val Ile Asp Pro Ala Thr Ala Thr Ser Val Asp Leu Arg Asp Ile

195	200	205
Lys Ile Val Lys Lys Leu Gly Gly Thr Ile Asp Asp Cys Glu Leu Val		
210	215	220
Glu Gly Leu Val Leu Thr Gln Lys Val Ser Asn Ser Gly Ile Thr Arg		
225	230	235 240
Val Glu Lys Ala Lys Ile Gly Leu Ile Gln Phe Cys Leu Ser Ala Pro		
	245	250 255
Lys Thr Asp Met Asp Asn Gln Ile Val Val Ser Asp Tyr Ala Gln Met		
	260	265 270
Asp Arg Val Leu Arg Glu Glu Arg Ala Tyr Ile Leu Asn Leu Val Lys		
	275	280 285
Gln Ile Lys Lys Thr Gly Cys Asn Val Leu Leu Ile Gln Lys Ser Ile		
	290	295 300
Leu Arg Asp Ala Leu Ser Asp Leu Ala Leu His Phe Leu Asn Lys Met		
305	310	315 320
Lys Ile Met Val Ile Lys Asp Ile Glu Arg Glu Asp Ile Glu Phe Ile		
	325	330 335
Cys Lys Thr Ile Gly Thr Lys Pro Val Ala His Ile Asp Gln Phe Thr		
	340	345 350
Ala Asp Met Leu Gly Ser Ala Glu Leu Ala Glu Glu Val Asn Leu Asn		
	355	360 365
Gly Ser Gly Lys Leu Leu Lys Ile Thr Gly Cys Ala Ser Pro Gly Lys		
	370	375 380
Thr Val Thr Ile Val Val Arg Gly Ser Asn Lys Leu Val Ile Glu Glu		
385	390	395 400
Ala Glu Arg Ser Ile His Asp Ala Leu Cys Val Ile Arg Cys Leu Val		
	405	410 415
Lys Lys Arg Ala Leu Ile Ala Gly Gly Gly Ala Pro Glu Ile Glu Leu		
	420	425 430
Ala Leu Arg Leu Thr Glu Tyr Ser Arg Thr Leu Ser Gly Met Glu Ser		
	435	440 445
Tyr Cys Val Arg Ala Phe Ala Asp Ala Met Glu Val Ile Pro Ser Thr		
	450	455 460
Leu Ala Glu Asn Ala Gly Leu Asn Pro Ile Ser Thr Val Thr Glu Leu		
465	470	475 480
Arg Asn Arg His Ala Gln Gly Glu Lys Thr Ala Gly Ile Asn Val Arg		
	485	490 495

100

Lys Gly Gly Ile Ser Asn Ile Leu Glu Glu Leu Val Val Gln Pro Leu
 500 505 510

Leu Val Ser Val Ser Ala Leu Thr Leu Ala Thr Glu Thr Val Arg Ser
 515 520 525

Ile Leu Lys Ile Asp Asp Val Val Asn Thr Arg
 530 535

<210> 327

<211> 144

<212> PRT

<213> Homo sapiens

<400> 327

Met Ala Phe Thr Phe Ala Ala Phe Cys Tyr Met Leu Ala Leu Leu Leu
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Thr Ala Ala Leu Ile Phe Phe Ala Ile Trp His Ile Ile Ala Phe Asp
 20 25 30

Glu Leu Lys Thr Asp Tyr Lys Asn Pro Ile Asp Gln Cys Asn Thr Leu
 35 40 45

Asn Pro Leu Val Leu Pro Glu Tyr Leu Ile His Ala Phe Phe Cys Val
 50 55 60

Met Phe Leu Cys Ala Ala Glu Trp Leu Thr Leu Gly Leu Asn Met Pro
 65 70 75 80

Leu Leu Ala Tyr His Ile Trp Arg Tyr Met Ser Arg Pro Val Met Ser
 85 90 95

Gly Pro Gly Leu Tyr Asp Pro Thr Thr Ile Met Asn Ala Asp Ile Leu
 100 105 110

Ala Tyr Cys Gln Lys Glu Gly Trp Cys Lys Leu Ala Phe Tyr Leu Leu
 115 120 125

Ala Phe Phe Tyr Tyr Leu Tyr Gly Met Ile Tyr Val Leu Val Ser Ser
 130 135 140

<210> 328

<211> 138

<212> PRT

<213> Homo sapiens

<400> 328

Met Pro Asn Phe Ser Gly Asn Trp Lys Ile Ile Arg Ser Glu Asn Phe
 5 10 15

Glu Glu Leu Leu Lys Val Leu Gly Val Asn Val Met Leu Arg Lys Ile

	20		25		30	
Ala Val	Ala Ala Ala Ser Lys Pro	Ala Val	Glu Ile Lys Gln Glu Gly			
	35	40	45			
Asp Thr	Phe Tyr Ile Lys Thr Ser Thr Thr	Val Arg Thr Thr	Glu Ile			
	50	55	60			
Asn Phe	Lys Val Gly Glu Glu Phe Glu Glu	Gln Thr Val Asp Gly Arg				
	65	70	75	80		
Pro Cys	Lys Ser Leu Val Lys Trp Glu Ser Glu	Asn Lys Met Val Cys				
	85	90	95			
Glu Gln	Lys Leu Leu Lys Gly Glu Gly	Pro Lys Thr Ser Trp Thr Arg				
	100	105	110			
Glu Leu	Thr Asn Asp Gly Glu Leu Ile Leu Thr Met Thr	Ala Asp Asp				
	115	120	125			
Val Val	Cys Thr Arg Val Tyr Val Arg Glu					
	130	135				

<210> 329

<211> 346

<212> PRT

<213> Homo sapiens

<400> 329

Met Phe	Leu Ser Ile Leu Val Ala Leu	Cys Leu Trp Leu His Leu Ala
	5	10 15
Leu Gly	Val Arg Gly Ala Pro Cys Glu Ala	Val Arg Ile Pro Met Cys
	20	25 30
Arg His	Met Pro Trp Asn Ile Thr Arg Met Pro	Asn His Leu His His
	35	40 45
Ser Thr	Gln Glu Asn Ala Ile Leu Ala Ile Glu	Gln Tyr Glu Glu Leu
	50	55 60
Val Asp	Val Asn Cys Ser Ala Val Leu Arg Phe	Phe Phe Cys Ala Met
	65	70 75 80
Tyr Ala	Pro Ile Cys Thr Leu Glu Phe Leu His	Asp Pro Ile Lys Pro
	85	90 95
Cys Lys	Ser Val Cys Gln Arg Ala Arg Asp Asp	Cys Glu Pro Leu Met
	100	105 110
Lys Met	Tyr Asn His Ser Trp Pro Glu Ser Leu	Ala Cys Asp Glu Leu
	115	120 125
Pro Val	Tyr Asp Arg Gly Val Cys Ile Ser Pro	Glu Ala Ile Val Thr

130 135 140
 Asp Leu Pro Glu Asp Val Lys Trp Ile Asp Ile Thr Pro Asp Met Met
 145 150 155 160
 Val Gln Glu Arg Pro Leu Asp Val Asp Cys Lys Arg Leu Ser Pro Asp
 165 170 175
 Arg Cys Lys Cys Lys Lys Val Lys Pro Thr Leu Ala Thr Tyr Leu Ser
 180 185 190
 Lys Asn Tyr Ser Tyr Val Ile His Ala Lys Ile Lys Ala Val Gln Arg
 195 200 205
 Ser Gly Cys Asn Glu Val Thr Thr Val Val Asp Val Lys Glu Ile Phe
 210 215 220
 Lys Ser Ser Ser Pro Ile Pro Arg Thr Gln Val Pro Leu Ile Thr Asn
 225 230 235 240
 Ser Ser Cys Gln Cys Pro His Ile Leu Pro His Gln Asp Val Leu Ile
 245 250 255
 Met Cys Tyr Glu Trp Arg Ser Arg Met Met Leu Leu Glu Asn Cys Leu
 260 265 270
 Val Glu Lys Trp Arg Asp Gln Leu Ser Lys Arg Ser Ile Gln Trp Glu
 275 280 285
 Glu Arg Leu Gln Glu Gln Arg Arg Thr Val Gln Asp Lys Lys Lys Thr
 290 295 300
 Ala Gly Arg Thr Ser Arg Ser Asn Pro Pro Lys Pro Lys Gly Lys Pro
 305 310 315 320
 Pro Ala Pro Lys Pro Ala Ser Pro Lys Lys Asn Ile Lys Thr Arg Ser
 325 330 335
 Ala Gln Lys Arg Thr Asn Pro Lys Arg Val
 340 345
 <210> 330
 <211> 826
 <212> PRT
 <213> Homo sapiens
 <400> 330
 Met Glu Gly Ala Gly Gly Ala Asn Asp Lys Lys Lys Ile Ser Ser Glu
 5 10 15
 Arg Arg Lys Glu Lys Ser Arg Asp Ala Ala Arg Ser Arg Arg Ser Lys
 20 25 30
 Glu Ser Glu Val Phe Tyr Glu Leu Ala His Gln Leu Pro Leu Pro His

35	40	45																	
Asn	Val	Ser	Ser	His	Leu	Asp	Lys	Ala	Ser	Val	Met	Arg	Leu	Thr	Ile				
50						55					60								
Ser	Tyr	Leu	Arg	Val	Arg	Lys	Leu	Leu	Asp	Ala	Gly	Asp	Leu	Asp	Ile				
65					70					75					80				
Glu	Asp	Asp	Met	Lys	Ala	Gln	Met	Asn	Cys	Phe	Tyr	Leu	Lys	Ala	Leu				
				85					90					95					
Asp	Gly	Phe	Val	Met	Val	Leu	Thr	Asp	Asp	Gly	Asp	Met	Ile	Tyr	Ile				
			100					105					110						
Ser	Asp	Asn	Val	Asn	Lys	Tyr	Met	Gly	Leu	Thr	Gln	Phe	Glu	Leu	Thr				
		115					120						125						
Gly	His	Ser	Val	Phe	Asp	Phe	Thr	His	Pro	Cys	Asp	His	Glu	Glu	Met				
	130						135					140							
Arg	Glu	Met	Leu	Thr	His	Arg	Asn	Gly	Leu	Val	Lys	Lys	Gly	Lys	Glu				
145					150					155					160				
Gln	Asn	Thr	Gln	Arg	Ser	Phe	Phe	Leu	Arg	Met	Lys	Cys	Thr	Leu	Thr				
				165					170					175					
Ser	Arg	Gly	Arg	Thr	Met	Asn	Ile	Lys	Ser	Ala	Thr	Trp	Lys	Val	Leu				
			180					185					190						
His	Cys	Thr	Gly	His	Ile	His	Val	Tyr	Asp	Thr	Asn	Ser	Asn	Gln	Pro				
		195					200					205							
Gln	Cys	Gly	Tyr	Lys	Lys	Pro	Pro	Met	Thr	Cys	Leu	Val	Leu	Ile	Cys				
	210					215					220								
Glu	Pro	Ile	Pro	His	Pro	Ser	Asn	Ile	Glu	Ile	Pro	Leu	Asp	Ser	Lys				
225					230				235						240				
Thr	Phe	Leu	Ser	Arg	His	Ser	Leu	Asp	Met	Lys	Phe	Ser	Tyr	Cys	Asp				
				245					250					255					
Glu	Arg	Ile	Thr	Glu	Leu	Met	Gly	Tyr	Glu	Pro	Glu	Glu	Leu	Leu	Gly				
		260					265						270						
Arg	Ser	Ile	Tyr	Glu	Tyr	Tyr	His	Ala	Leu	Asp	Ser	Asp	His	Leu	Thr				
		275					280					285							
Lys	Thr	His	His	Asp	Met	Phe	Thr	Lys	Gly	Gln	Val	Thr	Thr	Gly	Gln				
	290					295					300								
Tyr	Arg	Met	Leu	Ala	Lys	Arg	Gly	Gly	Tyr	Val	Trp	Val	Glu	Thr	Gln				
305					310					315					320				
Ala	Thr	Val	Ile	Tyr	Asn	Thr	Lys	Asn	Ser	Gln	Pro	Gln	Cys	Ile	Val				
				325				330						335					

Cys Val Asn Tyr Val Val Ser Gly Ile Ile Gln His Asp Leu Ile Phe
 340 345 350

Ser Leu Gln Gln Thr Glu Cys Val Leu Lys Pro Val Glu Ser Ser Asp
 355 360 365

Met Lys Met Thr Gln Leu Phe Thr Lys Val Glu Ser Glu Asp Thr Ser
 370 375 380

Ser Leu Phe Asp Lys Leu Lys Lys Glu Pro Asp Ala Leu Thr Leu Leu
 385 390 395 400

Ala Pro Ala Ala Gly Asp Thr Ile Ile Ser Leu Asp Phe Gly Ser Asn
 405 410 415

Asp Thr Glu Thr Asp Asp Gln Gln Leu Glu Glu Val Pro Leu Tyr Asn
 420 425 430

Asp Val Met Leu Pro Ser Pro Asn Glu Lys Leu Gln Asn Ile Asn Leu
 435 440 445

Ala Met Ser Pro Leu Pro Thr Ala Glu Thr Pro Lys Pro Leu Arg Ser
 450 455 460

Ser Ala Asp Pro Ala Leu Asn Gln Glu Val Ala Leu Lys Leu Glu Pro
 465 470 475 480

Asn Pro Glu Ser Leu Glu Leu Ser Phe Thr Met Pro Gln Ile Gln Asp
 485 490 495

Gln Thr Pro Ser Pro Ser Asp Gly Ser Thr Arg Gln Ser Ser Pro Glu
 500 505 510

Pro Asn Ser Pro Ser Glu Tyr Cys Phe Tyr Val Asp Ser Asp Met Val
 515 520 525

Asn Glu Phe Lys Leu Glu Leu Val Glu Lys Leu Phe Ala Glu Asp Thr
 530 535 540

Glu Ala Lys Asn Pro Phe Ser Thr Gln Asp Thr Asp Leu Asp Leu Glu
 545 550 555 560

Met Leu Ala Pro Tyr Ile Pro Met Asp Asp Asp Phe Gln Leu Arg Ser
 565 570 575

Phe Asp Gln Leu Ser Pro Leu Glu Ser Ser Ser Ala Ser Pro Glu Ser
 580 585 590

Ala Ser Pro Gln Ser Thr Val Thr Val Phe Gln Gln Thr Gln Ile Gln
 595 600 605

Glu Pro Thr Ala Asn Ala Thr Thr Thr Thr Ala Thr Thr Asp Glu Leu
 610 615 620

Lys Thr Val Thr Lys Asp Arg Met Glu Asp Ile Lys Ile Leu Ile Ala
 625 630 635 640
 Ser Pro Ser Pro Thr His Ile His Lys Glu Thr Thr Ser Ala Thr Ser
 645 650 655
 Ser Pro Tyr Arg Asp Thr Gln Ser Arg Thr Ala Ser Pro Asn Arg Ala
 660 665 670
 Gly Lys Gly Val Ile Glu Gln Thr Glu Lys Ser His Pro Arg Ser Pro
 675 680 685
 Asn Val Leu Ser Val Ala Leu Ser Gln Arg Thr Thr Val Pro Glu Glu
 690 695 700
 Glu Leu Asn Pro Lys Ile Leu Ala Leu Gln Asn Ala Gln Arg Lys Arg
 705 710 715 720
 Lys Met Glu His Asp Gly Ser Leu Phe Gln Ala Val Gly Ile Gly Thr
 725 730 735
 Leu Leu Gln Gln Pro Asp Asp His Ala Ala Thr Thr Ser Leu Ser Trp
 740 745 750
 Lys Arg Val Lys Gly Cys Lys Ser Ser Glu Gln Asn Gly Met Glu Gln
 755 760 765
 Lys Thr Ile Ile Leu Ile Pro Ser Asp Leu Ala Cys Arg Leu Leu Gly
 770 775 780
 Gln Ser Met Asp Glu Ser Gly Leu Pro Gln Leu Thr Ser Tyr Asp Cys
 785 790 795 800
 Glu Val Asn Ala Pro Ile Gln Gly Ser Arg Asn Leu Leu Gln Gly Glu
 805 810 815
 Glu Leu Leu Arg Ala Leu Asp Gln Val Asn
 820 825

<210> 331

<211> 92

<212> PRT

<213> Homo sapiens

<400> 331

Met Ala Tyr Arg Gly Gln Gly Gln Lys Val Gln Lys Val Met Val Gln
 5 10 15

Pro Ile Asn Leu Ile Phe Arg Tyr Leu Gln Asn Arg Ser Arg Ile Gln
 20 25 30

Val Trp Leu Tyr Glu Gln Val Asn Met Arg Ile Glu Gly Cys Ile Ile
 35 40 45

Gly Phe Asp Glu Tyr Met Asn Leu Val Leu Asp Asp Ala Glu Glu Ile
 50 55 60

His Ser Lys Thr Lys Ser Arg Lys Gln Leu Gly Arg Ile Met Leu Lys
 65 70 75 80

Gly Asp Asn Ile Thr Leu Leu Gln Ser Val Ser Asn
 85 90

<210> 332

<211> 235

<212> PRT

<213> Homo sapiens

<400> 332

Met Asp Pro Ala Arg Pro Leu Gly Leu Ser Ile Leu Leu Leu Phe Leu
 5 10 15

Thr Glu Ala Ala Leu Gly Asp Ala Ala Gln Glu Pro Thr Gly Asn Asn
 20 25 30

Ala Glu Ile Cys Leu Leu Pro Leu Asp Tyr Gly Pro Cys Arg Ala Leu
 35 40 45

Leu Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Arg Gln Phe
 50 55 60

Leu Tyr Gly Gly Cys Glu Gly Asn Ala Asn Asn Phe Tyr Thr Trp Glu
 65 70 75 80

Ala Cys Asp Asp Ala Cys Trp Arg Ile Glu Lys Val Pro Lys Val Cys
 85 90 95

Arg Leu Gln Val Ser Val Asp Asp Gln Cys Glu Gly Ser Thr Glu Lys
 100 105 110

Tyr Phe Phe Asn Leu Ser Ser Met Thr Cys Glu Lys Phe Phe Ser Gly
 115 120 125

Gly Cys His Arg Asn Arg Ile Glu Asn Arg Phe Pro Asp Glu Ala Thr
 130 135 140

Cys Met Gly Phe Cys Ala Pro Lys Lys Ile Pro Ser Phe Cys Tyr Ser
 145 150 155 160

Pro Lys Asp Glu Gly Leu Cys Ser Ala Asn Val Thr Arg Tyr Tyr Phe
 165 170 175

Asn Pro Arg Tyr Arg Thr Cys Asp Ala Phe Thr Tyr Thr Gly Cys Gly
 180 185 190

Gly Asn Asp Asn Asn Phe Val Ser Arg Glu Asp Cys Lys Arg Ala Cys
 195 200 205

Ala Lys Ala Leu Lys Lys Lys Lys Lys Met Pro Lys Leu Arg Phe Ala

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<210> 333
<211> 291
<212> PRT
<213> Homo sapiens
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<400> 333

Val Leu Leu Arg Gly Pro Pro Val Ala Arg Ala Gly Ala Ser Ser Gly
20 25 30

Gly Leu Gly Pro Val Val Arg Cys Glu Pro Cys Asp Ala Arg Ala Leu
35 40 45

Aia Gln Cys Ala Pro Pro Pro Ala Val Cys Ala Glu Leu Val Arg Glu
50 55 60

Pro Gly Cys Gly Cys Cys Leu Thr Cys Ala Leu Ser Glu Gly Gln Pro
65 70 75 80

Cys Gly Ile Tyr Thr Glu Arg Cys Gly Ser Gly Leu Arg Cys Gln Pro
85 90 95

Ser Pro Asp Glu Ala Arg Pro Leu Gln Ala Leu Leu Asp Gly Arg Gly
100 105 110

Leu Cys Val Asn Ala Ser Ala Val Ser Arg Leu Arg Ala Tyr Leu Leu
115 120 125

Pro Ala Pro Pro Ala Pro Gly Asn Ala Ser Glu Ser Glu Glu Asp Arg
130 135 140

Ser Ala Gly Ser Val Glu Ser Pro Ser Val Ser Ser Thr His Arg Val
145 150 155 160

Ser Asp Pro Lys Phe His Pro Leu His Ser Lys Ile Ile Ile Ile Lys
165 170 175

Lys Gly His Ala Lys Asp Ser Gln Arg Tyr Lys Val Asp Tyr Glu Ser
180 185 190

Gln Ser Thr Asp Thr Gln Asn Phe Ser Ser Glu Ser Lys Arg Glu Thr
195 200 205

Glu Tyr Gly Pro Cys Arg Arg Glu Met Glu Asp Thr Leu Asn His Leu
210 215 220

Lys Phe Leu Asn Val Leu Ser Pro Arg Gly Val His Ile Pro Asn Cys

180	185	190
Pro Val Thr Gln Leu Tyr Thr Met Thr Ser Thr Leu Glu Tyr Lys Thr		
195	200	205
Thr Lys Ala Asp Ile Gln Met Pro Phe Thr Cys Ser Val Thr Tyr Tyr		
210	215	220
Gly Pro Ser Gly Gln Lys Thr Ile His Ser Glu Gln Ala Val Phe Asp		
225	230	235
Ile Tyr Tyr Pro Thr Glu Gln Val Thr Ile Gln Val Leu Pro Pro Lys		
245	250	255
Asn Ala Ile Lys Glu Gly Asp Asn Ile Thr Leu Lys Cys Leu Gly Asn		
260	265	270
Gly Asn Pro Pro Pro Glu Glu Phe Leu Phe Tyr Leu Pro Gly Gln Pro		
275	280	285
Glu Gly Ile Arg Ser Ser Asn Thr Tyr Thr Leu Thr Asp Val Arg Arg		
290	295	300
Asn Ala Thr Gly Asp Tyr Lys Cys Ser Leu Ile Asp Lys Lys Ser Met		
305	310	315
Ile Ala Ser Thr Ala Ile Thr Val His Tyr Leu Asp Leu Ser Leu Asn		
325	330	335
Pro Ser Gly Glu Val Thr Arg Gln Ile Gly Asp Ala Leu Pro Val Ser		
340	345	350
Cys Thr Ile Ser Ala Ser Arg Asn Ala Thr Val Val Trp Met Lys Asp		
355	360	365
Asn Ile Arg Leu Arg Ser Ser Pro Ser Phe Ser Ser Leu His Tyr Gln		
370	375	380
Asp Ala Gly Asn Tyr Val Cys Glu Thr Ala Leu Gln Glu Val Glu Gly		
385	390	395
Leu Lys Lys Arg Glu Ser Leu Thr Leu Ile Val Glu Gly Lys Pro Gln		
405	410	415
Ile Lys Met Thr Lys Lys Thr Asp Pro Ser Gly Leu Ser Lys Thr Ile		
420	425	430
Ile Cys His Val Glu Gly Phe Pro Lys Pro Ala Ile Gln Trp Thr Ile		
435	440	445
Thr Gly Ser Gly Ser Val Ile Asn Gln Thr Glu Glu Ser Pro Tyr Ile		
450	455	460
Asn Gly Arg Tyr Tyr Ser Lys Ile Ile Ile Ser Pro Glu Glu Asn Val		
465	470	475
		480

110

Thr Leu Thr Cys Thr Ala Glu Asn Gln Leu Glu Arg Thr Val Asn Ser
 485 490 495

Leu Asn Val Ser Ala Ile Ser Ile Pro Glu His Asp Glu Ala Asp Glu
 500 505 510

Ile Ser Asp Glu Asn Arg Glu Lys Val Asn Asp Gln Ala Lys Leu Ile
 515 520 525

Val Gly Ile Val Val Gly Leu Leu Leu Ala Ala Leu Val Ala Gly Val
 530 535 540

Val Tyr Trp Leu Tyr Met Lys Lys Ser Lys Thr Ala Ser Lys His Val
 545 550 555 560

Asn Lys Asp Leu Gly Asn Met Glu Glu Asn Lys Lys Leu Glu Glu Asn
 565 570 575

Asn His Lys Thr Glu Ala
 580

<210> 335

<211> 709

<212> PRT

<213> Homo sapiens

<400> 335

Met Ala Glu Val Glu Asp Gln Ala Ala Arg Asp Met Lys Arg Leu Glu
 5 10 15

Glu Lys Asp Lys Glu Arg Lys Asn Val Lys Gly Ile Arg Asp Asp Ile
 20 25 30

Glu Glu Glu Asp Asp Gln Glu Ala Tyr Phe Arg Tyr Met Ala Glu Asn
 35 40 45

Pro Thr Ala Gly Val Val Gln Glu Glu Glu Glu Asp Asn Leu Glu Tyr
 50 55 60

Asp Ser Asp Gly Asn Pro Ile Ala Pro Thr Lys Lys Ile Ile Asp Pro
 65 70 75 80

Leu Pro Pro Ile Asp His Ser Glu Ile Asp Tyr Pro Pro Phe Glu Lys
 85 90 95

Asn Phe Tyr Asn Glu His Glu Glu Ile Thr Asn Leu Thr Pro Gln Gln
 100 105 110

Leu Ile Asp Leu Arg His Lys Leu Asn Leu Arg Val Ser Gly Ala Ala
 115 120 125

Pro Pro Arg Pro Gly Ser Ser Phe Ala His Phe Gly Phe Asp Glu Gln
 130 135 140

Leu Met His Gln Ile Arg Lys Ser Glu Tyr Thr Gln Pro Thr Pro Ile
 145 150 155 160
 Gln Cys Gln Gly Val Pro Val Ala Leu Ser Gly Arg Asp Met Ile Gly
 165 170 175
 Ile Ala Lys Thr Gly Ser Gly Lys Thr Ala Ala Phe Ile Trp Pro Met
 180 185 190
 Leu Ile His Ile Met Asp Gln Lys Glu Leu Glu Pro Gly Asp Gly Pro
 195 200 205
 Ile Ala Val Ile Val Cys Pro Thr Arg Glu Leu Cys Gln Gln Ile His
 210 215 220
 Ala Glu Cys Lys Arg Phe Gly Lys Ala Tyr Asn Leu Arg Ser Val Ala
 225 230 235 240
 Val Tyr Gly Gly Gly Ser Met Trp Glu Gln Ala Lys Ala Leu Gln Glu
 245 250 255
 Gly Ala Glu Ile Val Val Cys Thr Pro Gly Arg Leu Ile Asp His Val
 260 265 270
 Lys Lys Lys Ala Thr Asn Leu Gln Arg Val Ser Tyr Leu Val Phe Asp
 275 280 285
 Glu Ala Asp Arg Met Phe Asp Met Gly Phe Glu Tyr Gln Val Arg Ser
 290 295 300
 Ile Ala Ser His Val Arg Pro Asp Arg Gln Thr Leu Leu Phe Ser Ala
 305 310 315 320
 Thr Phe Arg Lys Lys Ile Glu Lys Leu Ala Arg Asp Ile Leu Ile Asp
 325 330 335
 Pro Ile Arg Val Val Gln Gly Asp Ile Gly Glu Ala Asn Glu Asp Val
 340 345 350
 Thr Gln Ile Val Glu Ile Leu His Ser Gly Pro Ser Lys Trp Asn Trp
 355 360 365
 Leu Thr Arg Arg Leu Val Glu Phe Thr Ser Ser Gly Ser Val Leu Leu
 370 375 380
 Phe Val Thr Lys Lys Ala Asn Ala Glu Glu Leu Ala Asn Asn Leu Lys
 385 390 395 400
 Gln Glu Gly His Asn Leu Gly Leu Leu His Gly Asp Met Asp Gln Ser
 405 410 415
 Glu Arg Asn Lys Val Ile Ser Asp Phe Lys Lys Lys Asp Ile Pro Val
 420 425 430

Leu Val Ala Thr Asp Val Ala Ala Arg Gly Leu Asp Ile Pro Ser Ile
 435 440 445

Lys Thr Val Ile Asn Tyr Asp Val Ala Arg Asp Ile Asp Thr His Thr
 450 455 460

His Arg Ile Gly Arg Thr Gly Arg Ala Gly Glu Lys Gly Val Ala Tyr
 465 470 475 480

Thr Leu Leu Thr Pro Lys Asp Ser Asn Phe Ala Gly Asp Leu Val Arg
 485 490 495

Asn Leu Glu Gly Ala Asn Gln His Val Ser Lys Glu Leu Leu Asp Leu
 500 505 510

Ala Met Gln Asn Ala Trp Phe Arg Lys Ser Arg Phe Lys Gly Gly Lys
 515 520 525

Gly Lys Lys Leu Asn Ile Gly Gly Gly Gly Leu Gly Tyr Arg Glu Arg
 530 535 540

Pro Gly Leu Gly Ser Glu Asn Met Asp Arg Gly Asn Asn Asn Val Met
 545 550 555 560

Ser Asn Tyr Glu Ala Tyr Lys Pro Ser Thr Gly Ala Met Gly Asp Arg
 565 570 575

Leu Thr Ala Met Lys Ala Ala Phe Gln Ser Gln Tyr Lys Ser His Phe
 580 585 590

Val Ala Ala Ser Leu Ser Asn Gln Lys Ala Gly Ser Ser Ala Ala Gly
 595 600 605

Ala Ser Gly Trp Thr Ser Ala Gly Ser Leu Asn Ser Val Pro Thr Asn
 610 615 620

Ser Ala Gln Gln Gly His Asn Ser Pro Asp Ser Pro Val Thr Ser Ala
 625 630 635 640

Ala Lys Gly Ile Pro Gly Phe Gly Asn Thr Gly Asn Ile Ser Gly Ala
 645 650 655

Pro Val Thr Tyr Pro Ser Ala Gly Ala Gln Gly Val Asn Asn Thr Ala
 660 665 670

Ser Gly Asn Asn Ser Arg Glu Gly Thr Gly Gly Ser Asn Gly Lys Arg
 675 680 685

Glu Arg Tyr Thr Glu Asn Arg Gly Ser Ser Pro Ser Gln Ser Arg Arg
 690 695 700

Asp Trp Gln Ser Ala
 705

<210> 336

<211> 480

<212> PRT

<213> Homo sapiens

<400> 336

Met Ile Arg Ala Ala Pro Pro Pro Leu Phe Leu Leu Leu Leu Leu
 5 10 15

Leu Leu Leu Val Ser Trp Ala Ser Arg Gly Glu Ala Ala Pro Asp Gln
 20 25 30

Asp Glu Ile Gln Arg Leu Pro Gly Leu Ala Lys Gln Pro Ser Phe Arg
 35 40 45

Gln Tyr Ser Gly Tyr Leu Lys Ser Ser Gly Ser Lys His Leu His Tyr
 50 55 60

Trp Phe Val Glu Ser Gln Lys Asp Pro Glu Asn Ser Pro Val Val Leu
 65 70 75 80

Trp Leu Asn Gly Gly Pro Gly Cys Ser Ser Leu Asp Gly Leu Leu Thr
 85 90 95

Glu His Gly Pro Phe Leu Val Gln Pro Asp Gly Val Thr Leu Glu Tyr
 100 105 110

Asn Pro Tyr Ser Trp Asn Leu Ile Ala Asn Val Leu Tyr Leu Glu Ser
 115 120 125

Pro Ala Gly Val Gly Phe Ser Tyr Ser Asp Asp Lys Phe Tyr Ala Thr
 130 135 140

Asn Asp Thr Glu Val Ala Gln Ser Asn Phe Glu Ala Leu Gln Asp Phe
 145 150 155 160

Phe Arg Leu Phe Pro Glu Tyr Lys Asn Asn Lys Leu Phe Leu Thr Gly
 165 170 175

Glu Ser Tyr Ala Gly Ile Tyr Ile Pro Thr Leu Ala Val Leu Val Met
 180 185 190

Gln Asp Pro Ser Met Asn Leu Gln Gly Leu Ala Val Gly Asn Gly Leu
 195 200 205

Ser Ser Tyr Glu Gln Asn Asp Asn Ser Leu Val Tyr Phe Ala Tyr Tyr
 210 215 220

His Gly Leu Leu Gly Asn Arg Leu Trp Ser Ser Leu Gln Thr His Cys
 225 230 235 240

Cys Ser Gln Asn Lys Cys Asn Phe Tyr Asp Asn Lys Asp Leu Glu Cys
 245 250 255

Val Thr Asn Leu Gln Glu Val Ala Arg Ile Val Gly Asn Ser Gly Leu

260	265	270
Asn Ile Tyr Asn Leu Tyr Ala Pro Cys Ala Gly Gly Val Pro Ser His		
275	280	285
<hr/>		
Phe Arg Tyr Glu Lys Asp Thr Val Val Val Gln Asp Leu Gly Asn Ile		
290	295	300
Phe Thr Arg Leu Pro Leu Lys Arg Met Trp His Gln Ala Leu Leu Arg		
305	310	315 320
Ser Gly Asp Lys Val Arg Met Asp Pro Pro Cys Thr Asn Thr Thr Ala		
	325	330 335
Ala Ser Thr Tyr Leu Asn Asn Pro Tyr Val Arg Lys Ala Leu Asn Ile		
	340	345 350
Pro Glu Gln Leu Pro Gln Trp Asp Met Cys Asn Phe Leu Val Asn Leu		
	355	360 365
Gln Tyr Arg Arg Leu Tyr Arg Ser Met Asn Ser Gln Tyr Leu Lys Leu		
	370	375 380
Leu Ser Ser Gln Lys Tyr Gln Ile Leu Leu Tyr Asn Gly Asp Val Asp		
	385	390 395 400
Met Ala Cys Asn Phe Met Gly Asp Glu Trp Phe Val Asp Ser Leu Asn		
	405	410 415
Gln Lys Met Glu Val Gln Arg Arg Pro Trp Leu Val Lys Tyr Gly Asp		
	420	425 430
Ser Gly Glu Gln Ile Ala Gly Phe Val Lys Glu Phe Ser His Ile Ala		
	435	440 445
Phe Leu Thr Ile Lys Gly Ala Gly His Met Val Pro Thr Asp Lys Pro		
	450	455 460
Leu Ala Ala Phe Thr Met Phe Ser Arg Phe Leu Asn Lys Gln Pro Tyr		
	465	470 475 480

<210> 337

<211> 543

<212> PRT

<213> Homo sapiens

<400> 337

Met Ala Ala Ala Lys Ala Glu Met Gln Leu Met Ser Pro Leu Gln Ile
5 10 15

Ser Asp Pro Phe Gly Ser Phe Pro His Ser Pro Thr Met Asp Asn Tyr
20 25 30

Pro Lys Leu Glu Glu Met Met Leu Leu Ser Asn Gly Ala Pro Gln Phe

BNSDOCID <WO 0100828A2 I >

Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys Pro Phe
333 366 365

Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His Leu Thr
370 375 380

Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile
385 390 395 400

Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His Thr Lys
405 410 415

Ile His Leu Arg Gln Lys Asp Lys Lys Ala Asp Lys Ser Val Val Ala
420 425 430

Ser Ser Ala Thr Ser Ser Leu Ser Ser Tyr Pro Ser Pro Val Ala Thr
435 440 445

Ser Tyr Pro Ser Pro Val Thr Thr Ser Tyr Pro Ser Pro Ala Thr Thr
450 455 460

Ser Tyr Pro Ser Pro Val Pro Thr Ser Phe Ser Ser Pro Gly Ser Ser
465 470 475 480

Thr Tyr Pro Ser Pro Val His Ser Gly Phe Pro Ser Pro Ser Val Ala
485 490 495

Thr Thr Tyr Ser Ser Val Pro Pro Ala Phe Pro Ala Gln Val Ser Ser
500 505 510

Phe Pro Ser Ser Ala Val Thr Asn Ser Phe Ser Ala Ser Thr Gly Leu
515 520 525

Ser Asp Met Thr Ala Thr Phe Ser Pro Arg Thr Ile Glu Ile Cys
530 535 540

<210> 338

<211> 148

<212> PRT

<213> Homo sapiens

<400> 338

Pro Pro Ala Thr Ser Tyr Ala Pro Ser Asp Val Pro Ser Gly Val Ala
5 10 15

Leu Phe Leu Thr Ile Pro Phe Ala Phe Phe Leu Pro Glu Leu Ile Phe
20 25 30

Gly Phe Leu Val Trp Thr Met Val Ala Ala Thr His Ile Val Tyr Pro
35 40 45

Leu Leu Gln Gly Trp Val Met Tyr Val Ser Leu Thr Ser Phe Leu Ile
 50 55 60
 Ser Leu Met Phe Leu Leu Ser Tyr Leu Phe Gly Phe Tyr Lys Arg Phe
 65 70 75 80
 Glu Ser Trp Arg Val Leu Asp Ser Leu Tyr His Gly Thr Thr Gly Ile
 85 90 95
 Leu Tyr Met Ser Ala Ala Val Leu Gln Val His Ala Thr Ile Val Ser
 100 105 110
 Glu Lys Leu Leu Asp Pro Arg Ile Tyr Tyr Ile Asn Ser Ala Ala Ser
 115 120 125
 Phe Phe Ala Phe Ile Ala Thr Leu Leu Tyr Ile Leu His Ala Phe Ser
 130 135 140
 Ile Tyr Tyr His
 145

<210> 339
 <211> 196
 <212> PRT
 <213> Homo sapiens

<400> 339
 Met Pro Gly Met Phe Phe Ser Ala Asn Pro Lys Glu Leu Lys Gly Thr
 5 10 15
 Thr His Ser Leu Leu Asp Asp Lys Met Gln Lys Arg Arg Pro Lys Thr
 20 25 30
 Phe Gly Met Asp Met Lys Ala Tyr Leu Arg Ser Met Ile Pro His Leu
 35 40 45
 Glu Ser Gly Met Lys Ser Ser Lys Ser Lys Asp Val Leu Ser Ala Ala
 50 55 60
 Glu Val Met Gln Trp Ser Gln Ser Leu Glu Lys Leu Leu Ala Asn Gln
 65 70 75 80
 Thr Gly Gln Asn Val Phe Gly Ser Phe Leu Lys Ser Glu Phe Ser Glu
 85 90 95
 Glu Asn Ile Glu Phe Trp Leu Ala Cys Glu Asp Tyr Lys Lys Thr Glu
 100 105 110
 Ser Asp Leu Leu Pro Cys Lys Ala Glu Glu Ile Tyr Lys Ala Phe Val
 115 120 125
 His Ser Asp Ala Ala Lys Gln Ile Asn Ile Asp Phe Arg Thr Arg Glu
 130 135 140

Ser Thr Ala Lys Lys Ile Lys Ala Pro Thr Pro Thr Cys Phe Asp Glu
145 150 155 160

Ala Gln Lys Val Ile Tyr Thr Leu Met Glu Lys Asp Ser Tyr Pro Arg
165 170 175

Phe Leu Lys Ser Asp Ile Tyr Leu Asn Leu Leu Asn Asp Leu Gln Ala
180 185 190

Asn Ser Leu Lys
195

<210> 340

<211> 316

<212> PRT

<213> Homo sapiens

<400> 340

Met Ala Thr Phe Val Glu Leu Ser Thr Lys Ala Lys Met Pro Ile Val
5 10 15

Gly Leu Gly Thr Trp Lys Ser Pro Leu Gly Lys Val Lys Glu Ala Val
20 25 30

Lys Val Ala Ile Asp Ala Gly Tyr Arg His Ile Asp Cys Ala Tyr Val
35 40 45

Tyr Gln Asn Glu His Glu Val Gly Glu Ala Ile Gln Glu Lys Ile Gln
50 55 60

Glu Lys Ala Val Lys Arg Glu Asp Leu Phe Ile Val Ser Lys Leu Trp
65 70 75 80

Pro Thr Phe Phe Glu Arg Pro Leu Val Arg Lys Ala Phe Glu Lys Thr
85 90 95

Leu Lys Asp Leu Lys Leu Ser Tyr Leu Asp Val Tyr Leu Ile His Trp
100 105 110

Pro Gln Gly Phe Lys Ser Gly Asp Asp Leu Phe Pro Lys Asp Asp Lys
115 120 125

Gly Asn Ala Ile Gly Gly Lys Ala Thr Phe Leu Asp Ala Trp Glu Ala
130 135 140

Met Glu Glu Leu Val Asp Glu Gly Leu Val Lys Ala Leu Gly Val Ser
145 150 155 160

Asn Phe Ser His Phe Gln Ile Glu Lys Leu Leu Asn Lys Pro Gly Leu
165 170 175

Lys Tyr Lys Pro Val Thr Asn Gln Val Glu Cys His Pro Tyr Leu Thr
180 185 190

Gln Glu Lys Leu Ile Gln Tyr Cys His Ser Lys Gly Ile Thr Val Thr
195 200 205

Ala Tyr Ser Pro Leu Gly Ser Pro Asp Arg Pro Trp Ala Lys Pro Glu
210 215 220

Asp Pro Ser Leu Leu Glu Asp Pro Lys Ile Lys Glu Ile Ala Ala Lys
225 230 235 240

His Lys Lys Thr Ala Ala Gln Val Leu Ile Arg Phe His Ile Gln Arg
245 250 255

Asn Val Ile Val Ile Pro Lys Ser Val Thr Pro Ala Arg Ile Val Glu
260 265 270

Asn Ile Gln Val Phe Asp Phe Lys Leu Ser Asp Glu Glu Met Ala Thr
275 280 285

Ile Leu Ser Phe Asn Arg Asn Trp Arg Ala Cys Asn Val Leu Gln Ser
290 295 300

Ser His Leu Glu Asp Tyr Pro Phe Asn Ala Glu Tyr
305 310 315

<210> 341

<211> 422

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(422)

<223> n = A,T,C or G

<400> 341

gatganattt	ttncnagaga	gaggaagang	ctattcagtt	ggatgggatt	aaatgcatca	60
caaataagag	aacttagaga	gaagtcggaa	aagtttgcct	tccaagcccg	aagttaacag	120
aatgatgaaa	cttatcatca	attcattgta	taaaaataaa	gagattttcc	tgagagaact	180
gatttcaa	gcttctgatg	ctttagataa	gataaggcta	atatcactga	ctgatgaaaa	240
tgctctttct	ggaaatgagg	aactaacagt	caaaattaag	tgtgataagg	agaagacctg	300
ctgcatgtca	cagacaccgg	tgtaggaatg	accagagaag	agttgggtta	aaaccttggt	360
accatagcca	aatctgggac	aagcgagttt	ttaaacaaaa	tgactgaagc	acaggaagat	420
gg						422

<210> 342

<211> 472

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(472)

<223> n = A,T,C or G

<400> 342
 ctggagaagg tgtgcagggg aaaccttgcg gatgtcaccg aggccaggtt gtctttctac 60
 tcgggacact ctctctttgg gatgtactgc atggtgttct tggcgctgna tgtgcaggca 120
 cgactctgtt ggaagtgggc acggctgctg cgacccacag tccagttctt cctggtggcc 180
 tttgccctct acgtgggcta caccgcgctg tctgattaca aacaccactg gagcgatgtc 240
~~cttgtttggc tctgtcaggg ggcactggc gctgacttc ctgtctgata cctctcagac~~ 300
 ttctcctaaag cccgaccccc acagcactgt ctgaaggagg aggagctgga acggaagccc 360
 agcctgtcac tgacgttgac cctgggagag gctgaccaca accactatgg ataccgcac 420
 tcctctctct gagggcggac cccgcccagg caggagagcta ctgtgagtc ag 472

<210> 343
 <211> 139
 <212> DNA
 <213> Homo sapien

<400> 343
 gtctctggggc tctcccttcc ctcaagccag ggctcctcct cctgtcgtgg gctcattgtg 60
 accactggcc tctctacagc acggcctgtg gcctgttcaa ggcagaacca cgacccttga 120
 ctcccggtg gggagggtg 139

<210> 344
 <211> 235
 <212> DNA
 <213> Homo sapien

<400> 344
 ctgcggggtc agcacagtag acatgactgg gatccccacc ttggacaacc tccagaaggg 60
 agtccaattt gctctcaagt accagtcgct gggccagtgt gtttacgtgc attgtaaggc 120
 tgggcgctcc aggagtgcc ctatggtggc agcatacctg attcaggtgc acaaattggag 180
 tccagaggag gctgtaagag ccategccaa gatccggtca tacatccaca tcagg 235

<210> 345
 <211> 458
 <212> DNA
 <213> Homo sapien

<400> 345
 ctgtaagggtg ctattcagtc ctgtgaccct tatttttgaa tgctcttcat tactgttgc 60
 ctgttttytg acttcttggg aaaccgccta ctttgggtgtg gtgtcacctt gagctgtgca 120
 cataggacac cagttttgac ttaacctaac aggcagtttt tatctctagc tttttcaagc 180
 caggtattga gcagtttctt ggccaatggc ctgagaaacc acctgtccct gtcaaggggt 240
 gattttatgt gttttaagtg gggaagtaat cccatgtact tatttcttaa atacctagga 300
 agttcttctt ggtggtctct cttggccctc cctcttttct cccccaacct accatctgc 360
 aaggcaagga atggcctctc cctccacaga ggcaacggct gcagagggag cactgtggct 420
 gccatcccag ttctcttcca aagccaaaca gacacgcg 458

<210> 346
 <211> 525
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(525)
 <223> n = A,T,C or G

<400> 346

ccagagcaca	acgcctcacc	atggactgga	cctggaggat	nntcttnnng	gtggcagcag	60
ccacaggtgt	ccactcccaa	gcccacttg	tgcagtctgg	ggctgaggag	aagaagcctg	120
gggcctcagt	gactatttct	tgtaaggctt	ctggatata	ncttactaaa	tatactttac	180
attgggtgcg	ccaggccccc	cccggacaaa	gacctgaatg	ggtgggatgg	atcaacactg	240
gcattgatac	cgttaaatat	tcacagaagt	ttcaggacag	agtctccatt	acctgggact	300
catccgcgac	cacagnctac	ctgnanntga	gtagcctgga	atccgaagac	acggctgtgt	360
attactgtgc	gagacttang	gcccgttcgc	tgtggtggga	cttaatgacg	cttttgacat	420
ctggggccaa	gggacagtgg	tcaccgtctc	ttcanggagt	gcattcgccc	caaccctttt	480
ccccctctct	cctgtgaaga	attccccgnc	ggatacgagc	agcgt		525

<210> 347

<211> 423

<212> DNA

<213> Homo sapien

<400> 347

ccagacgctg	acttgtttct	gagtccttaa	gcaggaagga	tttgaaatcc	tggagcttgg	60
cagtcttggc	cttcacctct	aagccaatgt	tgacctcttc	atctataaag	tccacaactc	120
tccggaagtc	atcctcacgg	aactgtcgag	aagttaaggc	tggggcccca	agccgcaggc	180
cgcccgggtg	gatggcactt	cggtctccag	gacaggtgtt	cttggtggca	gtgatggata	240
caagctctag	cacctgcctc	gcccagcttc	catccaggcc	cttgggcccgc	aggtccacca	300
gcaccaggtg	gttgctcagta	ccacctgata	ccagttagta	gcctcgctct	agcagggcat	360
ctgccatggc	ccgagcattc	ttcagaaacct	gcagggagta	ctcccggaac	atgggggtgc	420
agg						423

<210> 348

<211> 513

<212> DNA

<213> Homo sapien

<400> 348

cctctaggcc	tgatgctctc	agaggcaata	gaagaaaagt	aaaaggaagg	tctcacttca	60
cagacaatga	aacctctcta	acctctcttc	ccactaccca	caactcccta	cactgccaat	120
ctaaataaaa	agaggacaat	gcattgagtgt	gagatacaca	tacacacaca	cacatacaca	180
cacacacacg	cacagcttcc	tttcagccaa	agaactgcaa	aatccttccc	cgggaaggagg	240
acaactggca	acaccaatca	aggcttggtg	gtctaagggtg	atggctggaa	tcattgtgaga	300
ctggtaaaaa	tccagggaga	aaatgtttca	ccttcagctc	attcccaagt	ctctatgaag	360
cccggcccac	ttccacatag	gggaactgtg	gctctggggg	cagcctctgc	agctactcag	420
aatagggtgg	aggaggggct	ggctttgagg	ctgccttagc	catgaggctc	tttgccatagg	480
aatagctgga	gatgggagct	gcagggggct	cag			513

<210> 349

<211> 231

<212> DNA

<213> Homo sapien

<400> 349

ccttatttct	cttgctcttt	cgtacagggg	ggaatttgaa	gtagatagaa	accgacctgg	60
attactccgg	tctgaactca	gatcacgtag	gactttaatc	gttgaacaaa	cgaaccttta	120
atagcggctg	caccatcggg	atgtcctgat	ccaacatcga	ggtcgtaaac	cctattgttg	180
atatggactc	tagagtagga	ttgcgctggt	atccctaggg	taacttggttc	c	231

<210> 350

<211> 341
 <212> DNA
 <213> Homo sapien

<400> 350

ctgcccaagg	gcgttcgtaa	cggaatgct	gaagcgtggg	aaaaagggag	ggatggggg	60
agacggggat	gagctcagga	cagagccaga	ggccaagaag	agtaagacgg	ccgcaaagaa	120
aaatgacaaa	gaggcagcag	gagagggccc	agccctgtat	gaggaccccc	cagatcagaa	180
aacctcacc	agtggcaaac	ctgccacacc	caagatctgc	tcttggaatg	tggatgggct	240
tcgagcctgg	attaagaaga	aaggattaga	ttgggtaaag	gaagaagccc	cagatatact	300
gtgccttcaa	gagaccaa	gttcagagaa	caaactacca	g		341

<210> 351
 <211> 256
 <212> DNA
 <213> Homo sapien

<400> 351

ggcgttgggg	acggttgtag	gacgtggctc	tttatctgtg	agttttccat	ttacctccgc	60
tgaacctaga	gcttcagacg	ccctatggcg	tccgcctcga	cccaaccggc	ggccttgagc	120
gctgagcaag	caaaggtggg	cctcgcggag	gtgatccagg	cgttctccgc	cccgagagaat	180
gcagtgcgca	tggacgaggc	tcgggataac	gcttgcaacg	acatgggtaa	gatgctgcaa	240
ttcgtgctgc	ccgtgg					256

<210> 352
 <211> 368
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(368)
 <223> n = A,T,C or G

<400> 352

cctttcttgt	aagtgaagaa	naaggaatgc	agcaaagaag	agttcgacat	tggagtcctt	60
agttccatca	ggatcccatt	cgcagccttt	agcatcatgt	agaagcaaac	tgcacctatg	120
gctgagatag	gtgcaatgac	ctacaagatt	tttgtttt	tagctgtcca	ggaaaagcca	180
tcttcagctc	tgtgtacagt	caaagagcaa	gtgaaaccat	ttccagccta	aactacataa	240
aagcagccga	accaatgatt	aaagacctct	aaggctccat	aatcatcatt	aaatatgccc	300
aaactcattg	tgaactttta	ttttatatac	aggattaaaa	tcaacattaa	atcatcttat	360
ttacatgg						368

<210> 353
 <211> 368
 <212> DNA
 <213> Homo sapien

<400> 353

ctgaggggtg	gcagtaagca	atgaggatgg	gctataaagc	tgtaactgg	ctaagggccca	60
tccttgggca	ggcatttcag	acacatctgt	agagagggca	gtagcatctc	cgataggcca	120
gctctgaagg	aagcttaatg	cttaatacag	tcacactgca	taaattagct	tagaatgctc	180
tcttgggtaa	aaaatattaa	tagtgtatat	gcacttgaag	agcaaaattc	ctcaagaaaa	240
aaagttaaat	agcaaggagt	ttccatcagt	cccggctctt	gtgaggatta	ccacaacaaa	300
cacttaaaaag	gatacaacag	gtacttatta	aatgctgcct	tgccttttac	ctcttccttt	360

tttttttt

368

<210> 354
 <211> 380
 <212> DNA
 <213> Homo sapien

<400> 354
 ccatggcttc tcacccagac agtctttctg ggcaacttgg ggaagcccct gttctgctca 60
 agtctcacc catggaagag gtgggggaag ggggccttgg tttttcagga agacagggtg 120
 gagagcacga gtcactacaa agcagtaaaa gtgaatggtg tctccagggg ctgggtccag 180
 aacaccacgg agagccccag ccataaagggt gtgttccgcc tctggcctgc aggaatctct 240
 ttgaatctct ttgattggtg gctccaagag caatgggaag tcaacagcca ggaggctgga 300
 ctgggttccc tgggaccccg aggtcccaga gctgctgggc agtggttgtc ggcaaagaag 360
 aaaggtccaa gagggtcagg 380

<210> 355
 <211> 347
 <212> DNA
 <213> Homo sapien

<400> 355
 ccagtggagg ggtgggggta tcgatcccgc cgggggctgg cttggttgc ggtgccctga 60
 gcccttctct gccgcctgg gtgttgccct cactgatgga ggtaggcgtc cagccagatg 120
 tcaccagact tcttcgggga cctgacgatg tccaccagcg cggtgaggaa gggcttact 180
 tcgtagctga ggccgtgctt ggcacacagc gacttgacca gcggggccac ccggctgtag 240
 ttgtgtctcg gcacccctgg gaagagggtg tgctcgatct ggaagttgag gtgcccgctg 300
 aaccagttag tgaaaagtga gggctccacg ttgcaggtag ctgccag 347

<210> 356
 <211> 157
 <212> DNA
 <213> Homo sapien

<400> 356
 cctggagctg ctgaagactg ctattgggaa agctggctac actgataagg tggtcacatg 60
 catggacgta gcggcctccg agttcttcag gtctgggaag tatgacctgg acttcaagtc 120
 tccgatgac cccagcagg acatctcgcc tgaccag 157

<210> 357
 <211> 323
 <212> DNA
 <213> Homo sapien

<400> 357
 ccatacaggg ctgttgccca ggccctagag gtcactcttc gtaccctgat ccagaactgt 60
 ggggccagca ccatecgtct acttacctcc cttcgggcca agcacacca ggagaactgt 120
 gagacctggg gtgtaaatgg tgagacgggt actttggtgg acatgaagga actgggcata 180
 tgggagccat tggctgtgaa gctgcagact tataagacag cagtggagac ggcagttctg 240
 ctactgcgaa ttgatgacat cgtttcaggc cacaaaaaga aaggcgatga ccagagccgg 300
 caaggcgggg ctctgatgc tgg 323

<210> 358
 <211> 555
 <212> DNA

<213> Homo sapien

<400> 358
 aaaagggtttc taaaacatga cggagggttga gatgaagctt cttcatggag taaaaaatgt 60
 attttaaaga aaattgagag aaaggactac agagccccga gttaatacca atagaagggc 120
 aatgcttttta gattaaaatg aagggtgactt aaacagctta aagctctgtt tctcagttgt 180
 aggtgattaa aataatttga aggcgatctt ttaaaaagag attaaaccga aggtgattaa 240
 aagaccttga aatccatgac gcaggagagaa ttgcgtcatt taaagcctag ttaacgcatt 300
 tactaaacgc agacgaaaat ggaaagatta attgggagtg gtaggatgaa acaatttgga 360
 gaagatagaa gtttgaagtg gaaaactgga agacagaagt acgggaaggc gaagaaaaga 420
 atagagaaga tagggaaatt agaagataaa aacatacttt tagaagaaaa aagataaatt 480
 taaacctgaa aagtaggaag cagaagaaaa aagacaagct aggaaacaaa aagctaaggg 540
 caaaatgtac accac 555

<210> 359

<211> 549

<212> DNA

<213> Homo sapien

<400> 359
 ctgccaggct gaaaagaagc ctcagctccc acaccgccct cctcaccgcc cttcctcggc 60
 agtcacttcc actggtggac caccgggcccc cagccctgtg tcggccttgt ctgtctcagc 120
 tcaaccacag tctgacacca gagcccactt ccctcctctc tgggtgtgagg cacagcgagg 180
 gcagcatctg gaggagctct gcagcctcca cactaccac gacctcccag ggctyggtctc 240
 aggaaaaacc agccactgct ttacaggaca ggggggttgaa gctgagcccc gcctcacacc 300
 caccceccatg cactcaaaga ttggatttta cagctacttg caattcaaaa ttcagaagaa 360
 taaaaaatgg gaacatacag aactctaaaa gatagacatc agaaattggt aagttaagct 420
 ttttcaaaaa atcagcaatt ccccagcgta gtcaaggggtg gacactgcac gctctggcat 480
 gatgggatgg cgaccgggca agctttcttc ctcgagatgc tcttgctgct tgagagctat 540
 tgettttgt 549

<210> 360

<211> 289

<212> DNA

<213> Homo sapien

<400> 360
 tttaaatttt actagtgtta cttaatgtat attctaaaaa gagaatgcag taactaatgc 60
 cctaaatggt tgatctctgt ttgtcattac tttttcaaaa ttattttttt ctgtaaagta 120
 taatatataa aacttcttgc ttaaattgaa tttctatatt agtggttaat tgcagtttat 180
 taaagggatc attatcagta atttcatagc aactgttcta gtgttttgtg tttttaaaac 240
 agaattagga atttgagata tctgattata tttttcatat gaatcacag 289

<210> 361

<211> 311

<212> DNA

<213> Homo sapien

<400> 361
 ctgtttcagta tggcaaaggc cagacttact ccttcatcca cttctgtgcc ttgatgaggt 60
 gaacacactg gaataagatg gagggcagga tacctgcca agcctgagga atgagatgat 120
 ctgaaacaat tgggcaaagg ctggacattt caaaaagctg acttccaact gcagtttatg 180
 ggtatagaat ttgatgcttc cctcaagtcg tgactgctct ttctgaggca gccaggctag 240
 gccaaagaaat gagctgctcc agcttctcca gagcacagca gcctcccagg gcctgtcagc 300
 atctgcagca g 311

<210> 362
 <211> 496
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(496)
 <223> n = A,T,C or G

<400> 362
 ccagttttcta aaanaaatgca catttaaaga gaagcatcta ccacggcttt aaaacaaaac 60
 aactctgaga tgaacaatat gtgttatatt cagagattaa caatctcaat catacatact 120
 gattctttca gacatttaatt aaccactata tttttttgca ttaatgaagt ttgactatat 180
 gtgtaaaagg actaaatatt ttgcaacag cctgttcttt gtccattctt ttctggatag 240
 cgtgtccctct gtattgcggt agatttatat attctgttgc ctaaatatgt gtgtaaaatg 300
 agctgataaa ctggagtact acttaaaaaa aagtcctgtga ttataagat gcatatgctt 360
 tctatgtgaa tataagcttg tgcacaatgt ttaaaagaaa aacaatgaat tagaagagat 420
 ccccgctccc ccagttctgac atatttcata cagaatgttt aaaagaaaaa ctctgctagt 480
 cttggcaaac atttgg 496

<210> 363
 <211> 673
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(673)
 <223> n = A,T,C or G

<400> 363
 ccaagagggga gataanacaa acttctcaaa caaaaagaaa agaaaaacga atgattcattc 60
 tgctttaatc agtgtgatta atgcagcacc cattgccccg ggaaccgttt ctgctgtact 120
 atctggatac taaaatgtta cggaaagtagc tctttgttct cctcactct gcccttagtt 180
 aatagaaatt cagactcgcc aagtaaggct ttgtgcatag tgtcttcattg tcgcttatag 240
 ttgagcgcgt tcttagcagt tggcttcattg gacagctcat tagtgttttg actttttctta 300
 cccagcgtta attgaattct tgcttttaga caacttcctt ttgtagtgg tgaaccttgc 360
 ccttttagtac agttcaagtg aatctggata attgttcattc ttgtctttag cttagatacc 420
 atgtagtggc ctgtggctac aggaagctgg ttctgtctgc ttccacagtc tgcttaaaaa 480
 actgtctgac ttctgtgaata tagagaccaa gttaccact tctgatgaag agaccaatta 540
 agattcattc ctcatctctgt ttctttccag tgggagaaga gtcccatga aataagatga 600
 aactgattcc atgcactagt acatgtaggc ttctcccttg cgcaaagctt aacaatttct 660
 aggaaacttt ggg 673

<210> 364
 <211> 495
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(495)
 <223> n = A,T,C or G

<400> 364

cctaatgttt	gcncaagact	agcagagttt	ttctttttaa	cattctgtat	gaaatatgtc	60
agactggggg	acgggggatc	tcttctaatt	cattgttttt	cttttaaaca	ttgtgcacaa	120
gcttatattc	acatagaaag	catatacatc	ttataaatca	cagacttttt	tttaagtagt	180
actccagttt	atcagctcat	tttacacaca	tattctagga	aaagaaatga	taaatataga	240
gcaatacaga	ggacacacta	tccagaaaag	aatgaacaaa	gaacaggctg	ttgcaaaaat	300
atttagtccc	tttacacata	tagtcaaact	tcattaatgc	aaaaaatgta	gtgggtatta	360
aatgtctgaa	agaatcagta	tgtatgattg	agattgttaa	tctctgagta	taacacatat	420
tgttcatctc	agagttgttt	tgtttttaaag	ccgtggtaga	tgcttctctt	taaatgtgca	480
tttttagaa	actgg					495

<210> 365

<211> 291

<212> DNA

<213> Homo sapien

<400> 365

aactgacaag	cccttgccgc	tgcctctcca	ggatgtctac	aaaattggtg	gtattggtac	60
tgttcctgtt	ggcccagtg	gagactggg	ttctcaaacc	cggatgggtg	gtcacctttg	120
ctccagtcac	cgttacaacg	gaagtaaaat	ctgtcgaaat	gcaccatgaa	gctttgagtg	180
aagctcttcc	tggggacaat	gtgggcttca	atgtcaagaa	tgtgtctgtc	aaggatgttc	240
gtcgtggcaa	cgttgctggt	gacagcaaaa	atgaccacc	aatggaagca	g	291

<210> 366

<211> 277

<212> DNA

<213> Homo sapien

<400> 366

ctggatgggtg	cctcagaagg	tgcattctgc	ttctgcaggg	gcttgaaaca	ccaaggcact	60
ccagggatcc	tgaggtcaaa	gcagcagccc	cgggtgttgc	actccttggg	ggtgacatgg	120
gggtagcccc	cagtcacccc	tgctcttggc	tggcacggca	cactgggttg	cagacaggcc	180
cacgtactcc	tcagcagagc	tggaggacaa	gcaaggccag	gaccagcccc	agcatgcaga	240
gcgctctggc	agccatgacc	accgtgggct	ccgggac			277

<210> 367

<211> 311

<212> DNA

<213> Homo sapien

<400> 367

ccagagctgc	ggggcctcag	tacacggagc	tgttccggat	gccacagcac	agcaccatgc	60
tcaggatcat	ctcgaagatc	atgatcacag	cgaccacgat	ggcagcaatg	ccgatgaggt	120
acagcttccc	ggagaagagg	tcatcgatct	tctgggtggc	gtcctccttg	aagagggttg	180
tgatgatgtt	gctgcccag	ggacacaaat	tgttcttgag	cactgaggtg	gtcaaagcag	240
tcagtgtgct	ggagccacag	cagtcaagcg	tctcgtggaa	ggtcttcacc	acagccttgg	300
cgttgttggc	g					311

<210> 368

<211> 384

<212> DNA

<213> Homo sapien

<400> 368

ccaaaggggt	ctctagctgc	tgtctgtctg	ctcctgctca	tggatgagtt	tggcgatggg	60
gcccgtgatg	cgcctatca	aggtccagta	ctcatcgaag	ctgatgcgcc	catcaggatt	120
ggcatccagg	ttctggatga	gcttatccgc	agccttccgg	ttccctgtgt	ccgacagcat	180
gtggttcagc	tctttctgga	gcattctcgc	gaagctgctc	ttgctgatct	tgttcttgac	240
caggctgtac	ctagacacat	atttgtagaa	gttttccacc	aggacaatga	ctgccttctc	300
cagctccgtg	tagcaagtct	gacatctccc	tgcttcgcct	gctggcgggg	cctaaggcgg	360
gggccaaagc	cagttacagc	ccag				384

<210> 369

<211> 216

<212> DNA

<213> Homo sapien

<400> 369

ccaagtgcc	ggtggcttcc	agcagcttcc	tacgatcagc	cgaagaaagc	agaagctctg	60
gaggctgcc	tgcagaacct	caatgaagcc	aagaactatt	ttgcaaagg	tgactgcaaa	120
gagcgcatca	gggacgtcgt	ttacttccag	gccagactct	accataccct	ggggaagacc	180
caggagagga	accggtgtgc	gatgctcttc	cggcag			216

<210> 370

<211> 561

<212> DNA

<213> Homo sapien

<400> 370

ctggctcctt	cttttgtggt	cgtttggggg	atgggctggt	ttgggggtta	ggtgcagaga	60
atggtttggg	gccactgcgt	actggaccac	tctgagcctt	cagggcaggg	ttcttgtgag	120
tcttcatgtc	atcagatata	tgtttcaggg	catgtgtaat	gctctcccc	tgattaatct	180
gcgcgaacag	tgttgagcgg	gaagcagact	catctgagcc	tgaactggta	gagactgggg	240
gaggaggggg	gcctggttga	gggggaggag	gacctgatcc	ggcagaggg	ccagatggca	300
gtccgctcag	ttcttttgc	acaggccccg	ttttgctcca	ggccagtcgg	gtggatgga	360
actccttaat	gtaagcctgc	agctctgtcc	atatacttaa	ataagctttg	acccagctta	420
catgcttctt	atccacatct	ttgtactctt	tgaggactcg	gtttgtataa	aacatggcgg	480
catcattcat	ttcttttcga	taaggggccag	gcttggggagc	catagccacc	cagcccaggg	540
cctggatact	ttcgttgaca	g				561

<210> 371

<211> 518

<212> DNA

<213> Homo sapien

<400> 371

cccacttcca	tcgtctctctg	gtgtgaggca	cagcgagggc	agcatctgga	ggagctctgc	60
agcctccaca	cctaccacga	cctcccagg	ctgggctcag	gaaaaaccag	ccactgcttt	120
acaggacagg	gggttgaagc	tgagccccgc	ctcacacca	cccccatgca	ctcaaagatt	180
gtattttaca	gctacttgca	attcaaaaatt	cagaagaata	aaaaatggga	acatacagaa	240
ctctaaaaga	tagacatcag	aaattgttaa	gttaagcttt	ttcaaaaaat	cagcaattcc	300
ccagcgtagt	caagggttga	cactgcacgc	tctggcatga	tgggatggcg	accgggcaag	360
ctttcttcc	cgagatgctc	tgctgcttga	gagctattgc	tttgtaaaga	tataaaaagg	420
ggtttctttt	tgtctttctg	taagggtggac	ttccagcttt	tgattgaaag	tcctaggggtg	480
attctatttc	tgctgtgatt	tatctgctga	aagctcag			518

<210> 372

<211> 335

<212> DNA

<213> Homo sapien

<400> 372

ctggaggctg ggtgcaccct gccagatcc acacctgtac cccggcggaa aggtcatgg	60
ccattgaaga cgggtgtgaa aaagccaaag ggaaaagcac caacaccaa tgagaagtgg	120
aagcccccg tatcacaaa tggctggaat cccctctgc tctcggaga tggctctctg	180
ccctgggggc ggggtggagt ttttaactg ggatcctggg gcttctggct ccctgcccc	240
taaagcggga caaccttctc tctgctgac ccagctttac atactggaca ctcttgccgt	300
tctggccgtg tctccagcca ctgatgaaga catgg	335

<210> 373

<211> 467

<212> DNA

<213> Homo sapien

<400> 373

ccactagctg aatcttgaca tgggaagggtt tagctaattgc caagtggaga tgcagaaaat	60
gctaagttga cttaggggct gtgcacagga actaaaaggc aggaaagtac taaatattgc	120
tgagagcatc caccacagga aggactttac cttccaggag ctccaaactg gcaccaccc	180
cagtgtcac atggctgact ttatcctccg tgttccattt ggcacagcaa gtggcagtgt	240
ctccaccacc tatgatggtg atgcagcccc tagaagtggc ttccaccacc tcatccatga	300
gagcttttgg tccccgggca aaagcttccc attcaaatac cccacagga ccattccaca	360
caatctgctt agcccgagtg acagcctcag catacttctt gctgctttca ggaccacagt	420
ccaagcccat ccagccagca ggtacgccag aagccacagt ggcttgg	467

<210> 374

<211> 284

<212> DNA

<213> Homo sapien

<400> 374

tttccgtaaa agcgtgtaac aagggtgtaa atatttataa ttttttatac ctgttgtag	60
acccgagggg cggcggcgcg gttttttatg gtgacacaaa tgtatatatt gctaacagca	120
attccaggtc cagtattgtg accgcggagc cacaggggac cccacgcaca ttccgttgcc	180
ttaccgatg gcttgtagc cggagagaac cgattaaaac cgtttgagaa actcctcct	240
tgtctagccc tgtgttcgct gtggacgctg tagaggcagg ttgg	284

<210> 375

<211> 307

<212> DNA

<213> Homo sapien

<400> 375

cctactcttc tccgtccatt gtactatctg cccgtgggtg ggatggcagt aggatcatat	60
ttgatgactt ccgagaagca tattattggc tccgtcataa tactccagag gatgcgaagg	120
tcatgtcctg gtgggattat ggctatcaga ttacagctat ggcaaaccga acaattttag	180
tggacaataa cacatggaat aataccata tttctcgagt agggcaggca atggcgtcca	240
cagaggaaaa agcctatgag atcatgaggg agctcgatgt cagctatgtg ctggtcattt	300
ttggagg	307

<210> 376

<211> 650

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(650)
 <223> n = A,T,C or G

<400> 376
 ccattgncn ctnacgtgat gtcacatcat gccagggtcat cttggcaaaa gtcggagcat 60
 ttctcagtc ctgcaaagta gcccttctcg ttggagcacc ggaagagacg tgtgtgtttc 120
 atgtactcgg catcgtcac atagggtctt tgtgccccaa tgcccaccca gaagaagttc 180
 tcaggctcct cacttcggt gataacctgc ttgctgtagg aggtgtcaaa catggtgttc 240
 aggatgtctt ctgccaaact ggcttcgtca gggctctgatg cccggccccac ccaggcatac 300
 acgatgccct ggttgctctc actctcaaag ggaaccttga ggatgaagca gaactcggag 360
 ttgaggagggc tggagtcggt gttgatctgg atgcaccggg tgcagagggc gctgccggtg 420
 gtgccgatct ggtagaggct gggctgttgg gcgccctgga ccgcttctc cttgccccgg 480
 tggatgatga acttctctt gaaatgggac aggaacttgg ggttctctg ctgctgcgtc 540
 atgctacca cctccagctt cccagggaag aggtctctga actcttttg caggctgaag 600
 gtgaaggatga cccaccata ttgggaggct ttcacggccc tgccagaagt 650

<210> 377
 <211> 306
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(306)
 <223> n = A,T,C or G

<400> 377
 tctagatgca tgctcgagcg gccgccagtg tgatgganat ctgcagaatt cgccttctga 60
 ggggcccgc gggcagggtt gggctgctgcc ttcacctgcc aggccttct ccgctagctt 120
 ggggcgagca gagctgcgtc cagtggaaact aaagccgttc caggattatc aaaaactgag 180
 cagcaacctt gggggacctg gatcatcac gactccccca actggaaggt ccttctctgg 240
 cctcaatttc cgtctcaagg ccacgccttc cacctacagt ggagtcttcc gcaccacagc 300
 cgtcga 306

<210> 378
 <211> 199
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(199)
 <223> n = A,T,C or G

<400> 378
 ccacangtgg cacttgggtg tggctcctct gttatttgtc ctcatgtgag aaagcagatc 60
 atctccaaat cttgccattt gtatactttt ggtggagact tggatgtcat atcttctttg 120
 ttttgggttt tcttccctag cttattttgt ggcttttaaa gaagtggatt gtattgtgag 180
 atcctgtgat tcttgggtg 199

<210> 379
 <211> 216
 <212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(216)

<223> n = A,T,C or G

<400> 379

ccagggcang	tcataaagag	gggcattgtc	ttgcatgcgg	cctgccgtgt	ccaccagcac	60
cacgtcaaag	ccttggttac	gtgcaaaagc	aatggcttcc	atggcaatgc	cagcagcatc	120
cttgccatag	cccttttcaa	acaactgcac	catggtgcgg	ccaccatgct	tctctggagg	180
gtgtagggca	ctcaaacgcc	gggtgtgtgt	acgcag			216

<210> 380

<211> 555

<212> DNA

<213> Homo sapien

<400> 380

ccatgggcct	tcttttccac	taaaaggaat	tccgaacagc	aaaaagaagg	tcttgagata	60
gtgaaaatgg	tgatgatata	tttagaaggt	gaagatgggt	tggatgaaat	ttattcattc	120
agtgagagtc	tgagaaaact	gtgcgtcttc	aagaaaattg	agaggcattc	cattcactgg	180
ccctgccgac	tgaccattgg	ctccaatttg	tctataagga	ttgcagccta	taaatcgatt	240
ctacaggaga	gagttaaaaa	gacttggaca	gttgtggatg	caaaaaccct	aaaaaaagaa	300
gatatacaaa	aagaaacagt	ttattgctta	aatgatgatg	atgaaactga	agtttttaaaa	360
gaggatatta	ttcaagggtt	ccgctatgga	agtgatatag	ttcctttctc	taaagtggat	420
gaggaacaaa	tgaatatata	atcggagggg	aagtgtctct	ctgttttggg	attttgtaaa	480
tcttctcagg	gtcagagaag	attcttcatg	ggaaatcaag	ttctaaaggc	tttgccecaa	540
gagatgatga	ggcag					555

<210> 381

<211> 406

<212> DNA

<213> Homo sapien

<400> 381

ctgcaccagg	tgggcctcta	ggccccatta	agccccattg	tccagggcca	agtccaactc	60
cttttccatc	atactgagca	gcaaagttcc	caccgagacc	agggggggcca	ggaggaccag	120
gtggaccagg	agggcctgtg	ggaccatctt	caccatctct	gcctgggggg	cctgggtggac	180
ccctttctcc	acgtggctct	ctatctccgg	ctgggccctt	tcttacagtt	tcctcttgta	240
aagattggca	tgttgctagg	cataaggtta	ctgcaagcag	caacaaagtc	cgcgtatcca	300
caaagctgag	catgtctagc	acttagacat	gcagactcct	tgtgtcgcag	agccctcggg	360
tcaccggcgg	aggtatcacc	tggcggggcg	gggcattgcag	tcgtgg		406

<210> 382

<211> 528

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(528)

<223> n = A,T,C or G

<400> 382

```

ctgagcagtt tgtgggtntn tcttcccga agtttcagga agtattcaca aaagaaaaat      60
acattttttt ccccaggggt ggggcaagga cagtggagag agtgctagga aatgagtccc      120
ctgggaaagg ggaccggggt gtgatgttaa atatctccgg ctcccaagtg actggatttg      180
cctaggacct tcagaccaac agacttcaga cctcagacc tgcctcgggg ccagggtggag      240
aaagtgaagg ccgtacaagg aagtgaattt ctgagttgtt ggggctaagc ctgacccctt      300
ctccatgctc cccgccccaa cccactctgg cctcagtaga tttttttttt agttgtgggt      360
gttgcccagg ctggagtgcg gtagegccat cttggctcac tgcacctcca ccttccgggg      420
tcaagcgatt ctccagctc agcctcctga gttagctagga ctgcagggtgc tccaccacgc      480
ccggctaatt tttgtatttt tagtagagat ggggtttccc catgttgg      528

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<210> 383
<211> 335
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(335)
<223> n = A,T,C or G

```

```

<400> 383
ccatnttgag tctactcctg cgtcttgtgc cctagcaccg cgagaaccgt cagtttgagc      60
cagatggaag ctgagctgaa cacattacga tggatgatgg aaacataaga ctatcaagaa      120
atccaagtgg taatggggga agtttattca gcatccggca atggacttat cgtagttggg      180
gaaacgggtg ttccgaataa tatcctggaa gttatcagga cacctatttt aaatataggc      240
ctgaattttg taaagtaata ttttaagggtg tccgtgataa ttaaataaaa tgcttaattc      300
atgtggcgaa aaaaaaaaaa naaaaaaaaa aaaaaa      335

```

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<210> 384
<211> 333
<212> DNA
<213> Homo sapien

```

```

<400> 384
agtccaatac ggctattggg gttgtagcag ctttcagagg aaattagtg tctgggcttg      60
cctccagctc cccaggggca gcccagtag ctacactgtc cagacagcac aagaccaggc      120
tgggtgtcag tccatccgag cgtgcctca gggatcgata aagtttact gcagaaagtc      180
tccactgctg tatgctgaca tctgccctga accttcaccc tacagcatta caggctttaa      240
tcagattctg ctggaaagac acaggctgat ccacgtgacc tcttctgctt tcaactgggt      300
gggggtgatcc ttgggtgcctt tgtttccaca agg      333

```

```

<210> 385
<211> 343
<212> DNA
<213> Homo sapien

```

```

<400> 385
ctgtgaacac tcaggttgaa aggggtcttc tcttgaaca cccaccgagg ggcctggagc      60
aacagccagc cgatatggac ttctagctgc accgggtcac tgaggggtgga gaggtttgtc      120
tggcacctgt actctccact gtcgtcgact gtggcagcgt caatgaagta gctcgaggcc      180
tggcttgaga tgaggtctc attgtgaaac cactgtgtgg aattgtcctc aggggagtag      240
gtcctctggc acttcagagt cacactgtcc ttctcgagca cctgtacca ttgaggctcc      300
aggaacacca cagcctttgg gagatcttca gtcgcgatgc caa      343

```

```

<210> 386

```

<211> 244
 <212> DNA
 <213> Homo sapien

<400> 386

tattctttga	ttcttggcaa	ataggtgaga	gaactaatag	caaccagga	cttggggaag	60
aagtcacaaa	gtcggtaaca	gaagaatgga	atcagccaac	ccacttgata	agaaattgct	120
ccataaacca	gcattgaact	gattataaac	ataagaacag	agacggcaaa	aagaacacag	180
gcattatcag	ccattctctc	agacgaatag	taattaccga	tgacttcata	ctgaatgttg	240
acag						244

<210> 387
 <211> 504
 <212> DNA
 <213> Homo sapien

<400> 387

atctggagtc	cagcctcagg	gatgcgctac	tttccattct	ctgcattgaa	cattcgttct	60
gtcagcatcc	gtcccagctt	cactgcatca	gcggcaaac	tgcggatccc	gtcagagagc	120
ttctccacag	ccatctggtc	ctcgttgtgc	aaccaacgga	aagacttctc	atccaggtgg	180
attttttcca	ggcactggc	ttgggcccgc	ttggctgaga	gcacaggcac	cagcttggcg	240
ttgtcctgca	gcagctctcc	caggagcttg	ggtgggatgg	tgaggaagtc	acagccggcc	300
agtgccttga	tctgcgccgt	gttgcggaag	gaggcgccca	tgacaatggt	ttttagctta	360
aacttcttgt	agtagttgta	gatttttagtg	acactcttta	ccccagggtc	ttccaggggc	420
tcataggatt	tcttgtcggt	gtttgccaca	tgccaatcaa	ggatgcgccc	aacaaatggg	480
gagatgaggg	tcacaccgc	ctcg				504

<210> 388
 <211> 450
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(450)
 <223> n = A,T,C or G

<400> 388

gccaaagtgc	tgcntgaatt	ccactccctt	ggttttcgcc	tgcccagcgt	tgctgtttgc	60
gtggaggggtg	gggggagctc	agtggcaggg	aatcagcggg	ccgtgggggtc	gtggggacgg	120
gaacatgtgc	ccgaccgctc	catccctctc	tcctccttag	gatgcataac	ctaccttgtc	180
tttttttttt	ttaaattttnt	ttccaggtan	agtagctntt	tgtacataaa	naataacttga	240
aaaattaatt	gtatgatgta	tgaaaaanaca	nagtctccta	gttttgtatn	ttgttgtatg	300
actgccatga	gttccaccaa	aaagccactn	tattttggtc	tntgtgacat	tttaaattgcg	360
tgacaaaagt	gagcaataaa	agngaggaan	aatntatnt	atganataat	atanattgta	420
ttgaaatcta	aaaaaaaaaa	aaaaaaaaaa				450

<210> 389
 <211> 297
 <212> DNA
 <213> Homo sapien

<400> 389

cctgcacttg	aacatggctt	tggttttaag	caacttctct	accctgaccc	tcctcctggg	60
acagcgtttc	gggaggtttc	ttggcctcac	tgagagggat	gtggagctgc	tgtaccccg	120

caaggagaag	gtattctaca	gcctgatgag	ggagagcggc	tacatgcaca	tccagtgcac	180
caagcctgac	accgtaggct	ctgctctgaa	tgactctcct	gtgggtctgg	ctgcctatat	240
tctagagaag	ttttccacct	ggaccaatac	ggaattccga	tacctggagg	atggagg	297

<210> 390
 <211> 223
 <212> DNA
 <213> Homo sapien

<400> 390						
ctgggctgga	gagttggtgc	tggcaaaaaca	gtccttcccc	tggggccggg	tcttaccag	60
gtccagagaa	accaacgcgg	gatgtcagac	ttcaccaaaa	ggactttctg	gttgccctg	120
gctggcttcc	tggaggcggt	cgcctctagt	ttctcagggg	tggagcgaga	gcccagccag	180
agaacagtaa	gaggagctgc	tctcctatct	gcactcacc	agg		223

<210> 391
 <211> 365
 <212> DNA
 <213> Homo sapien

<400> 391						
ctgaggaaga	aatgaaaaaa	gaccctgtcc	ctcatggccc	gcccactggc	ctcctgtgaa	60
ctctgtcctg	ttgccaaacc	cagatgaagt	cagccaaaaa	gtgctttcca	catcctctct	120
ctggggctgc	ccagcctgac	cgtaggggat	ccactggcag	agccaagggt	gatgctgggtg	180
cctgaagctg	gaagccagca	ggacatgaga	cccctcctgt	agcaggaagt	ggttctagaa	240
ctcccagcag	aacagaacgg	aaaaggagct	gattggggat	agaatgagtt	ctgctaaaca	300
gccagatgct	ctgagagagg	tgacactyga	ctgtctcgga	ggtgtgtgca	gatggctaca	360
ggtgg						365

<210> 392
 <211> 302
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(302)
 <223> n = A,T,C or G

<400> 392						
ccaagagcta	caatgagcag	cgcatacanga	cagaacgtgc	aggtttttga	gttccagttg	60
actgcagagg	acatgaaagc	catagatggc	ctagacagaa	atctccacta	ttttaacagt	120
gatagttttg	ctagccaccc	taattatcca	tattcagatg	aatattaaca	tggagagctt	180
tgcctgatgt	ctaccagaag	ccctgtgtgt	ggatgggtgac	gcagaggacg	tctctatgcc	240
ggtgactgga	catatcacct	ctacttaaata	ccgtcctgtt	tagcgacttc	agtcaactac	300
ag						302

<210> 393
 <211> 213
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(213)

<223> n = A,T,C or G

<400> 393

ccaataatca agnacaaana ctggatttga ggatggatca gttctgaaac agtttctttc	60
tgaacacagag aaaatgtccc ctgaagacag agcaaaatgc ttgggaaaga atgaggccat	120
ataggtagct catgatgctg tggcctcagg aggcctatgt cggctagatg acaaggtgaa	180
tttccatttt attctgttta acaacgtgga tgg	213

<210> 394

<211> 334

<212> DNA

<213> Homo sapien

<400> 394

cctacccata atccagagag gcttgcccag aggaggacta cgtggggggac gtgccaccag	60
aacctacttt gggggcggga tgtcactccg aggtcaaaac ctgctccgag gtggacgagc	120
cgtagctccc cgaatgggct taagaagagg tgggtgttca ggtcgtggag gtccctgggag	180
agggggccta gggcgtggag ctatgggtcg tggcggaatc ggtggttagag gtccggggtat	240
gataggctcg ggaagagggg gctttggagg ccgaggccga ggccgtggac gagggagagg	300
tgcccttget cgccctgtat tgaccaagga gcag	334

<210> 395

<211> 174

<212> DNA

<213> Homo sapien

<400> 395

ccagatgagg aaaaaaatta ggaaggagat gaagttttcc aaatttcatg gtatatgctg	60
caattcccca accttcactc tccatgtagc ctactgggtc tactattcca caaagtggct	120
caacctccaa atgacctctg gtttaccctt attaaaatcc caaaggactt tcag	174

<210> 396

<211> 140

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(140)

<223> n = A,T,C or G

<400> 396

ctgcaaaagg ttgtgtaacn ttctccagca ttggaccca gtacgtgaaa gccacaaca	60
cgttcattgt ctttagtatt acagattatt ttgcataac atttgttgtt atctcttgac	120
ggaatcgtcc attccaatgg	140

<210> 397

<211> 318

<212> DNA

<213> Homo sapien

<400> 397

cctcgccctgg agggcccccg ggcagcacag ggaggacgag cttgtccagc agaggggtctg	60
gcagaggggt ccgcagaggt ttgggcaggg ggtctgacat ccctgggtcc tgcctctggct	120
ctggctgccg ggatttgcac aggccaggt gcatacagat gccgttttag tcagtcctggt	180

tctggaagta gtcgatgacc agggggaagt agtcgtcaag cacttggttg cactggggca	240
tgagcagctt caaggggagg acgttgcaact cctgctccag gaacttctc atcgtgtcct	300
ggaaaatggc ctcttgg	318

<210> 398
 <211> 517
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(517)
 <223> n = A,T,C or G

<400> 398	
ccttnccttcg ccattccattc atcgaccctc tccagcactt gctgcaggct tggetgacca	60
tccaccatgg cttgaataat cccggtgagc tctgtacaga atggggtaag ctgtggatgg	120
actacaggtt ggacatacat gtgaaaggta gactcaatct ccattggctcg gccatttagc	180
tttaggatgg ggaactcgat gatttcttga ggatgaatct gtggcttgct gcacgtggcc	240
tcaaagtcca gcaactaaaa gtatgtatc ctctggagag ggaaggacac cattgccgcc	300
atggatggc caaagccgtg ggccgccagc tttctgggtg atatggagca gaactccgga	360
acaccacagg gagaaaataa gtgggagccc agcacttttc ttgctcttga aagtaaatac	420
gaagaaaatc gagctgtctc agtctgtaaa ggtgctagca ttgaacatcc agaagcatct	480
aaaactctcc ttacttcgaa gatgccaaga ccggcag	517

<210> 399
 <211> 329
 <212> DNA
 <213> Homo sapien

<400> 399	
ccaacctcag gcaacgggtg gagcagtttg ccagggcctt ccccatgcct ggttttgatg	60
agcattgaag gcacctggga aatgaggccc acagactcaa agttactctc cttcccccta	120
cctgggccag tgaaatagaa agcctttcta ttttttgggtg cgggagggaa gacctctcac	180
ttagggcaag agccaggtat agtctccctt cccagaattt gtaactgaga agatcttttc	240
tttttctttt ttctggtaac aagacttaga aggagggccc aggcactttc tgtttgaacc	300
cctgtcatga tcacagtgtc agagacggc	329

<210> 400
 <211> 451
 <212> DNA
 <213> Homo sapien

<400> 400	
ctggcttcac tgctcaggtg attatcctga accatccagg ccaaataagc gccggctatg	60
ccccgtgatt ggattgccac acggctcaca ttgcatgcaa gtttgctgag ctgaaggaaa	120
agattgatcg ccgttctggg aaaaagctgg aagatggccc taaattcttg aagtctgggtg	180
atgctgccat tgttgatatg gttcctggca agcccatgtg tgttgagagc ttctcagact	240
atccaccttt gggtcgcttt gctgttcgtg atatgagaca gacagttgcg gtgggtgtca	300
tcaaagcagt ggacaagaag ctgctggagc tggcaaggct accaagtctg cccagaaagc	360
tcagaagcta aatgaatatt atccctaata cctgccaccc cactcttaat cagtgggtgga	420
agaacggctc agaactgttt gtttcaattg g	451

<210> 401
 <211> 180

<212> DNA

<213> Homo sapien

<400> 401

ccaggaagca	ggccagggga	ttggcagcac	tgcccagcac	cacagccagg	tggtaggcca	60
gacgctcga	gggttagcag	gaaagctat	gaaagggagg	gagaaagcaa	ttggtcagcg	120
cgttggtggc	ggccaacagg	cccagcaggc	aggcactgcg	ggctgataga	agctgatagg	180

<210> 402

<211> 385

<212> DNA

<213> Homo sapien

<400> 402

ccaggccacc	tgtgcggggc	tcctcgatgt	ggaagggttcg	ggtgaggaga	ttgtagaagg	60
agccgtagca	cacggccacc	acagtgcacg	tgaggcagat	cacgttgtag	ggcatgctga	120
agtcgggtgt	cggcaggttc	accagcagcg	gctccgtgta	gagccgcaca	aagtagttag	180
agccatcaga	gactgggaac	aggctgttga	agaggggact	ctcttcccag	tccactggct	240
tggctgctac	catgctgggc	acaagggcgc	tgaggacaga	tgggctgaca	tagaagccat	300
ggttaggatc	tggcgtgtac	tcggtccact	tcagcagcgc	ccgctcaaac	tggatggaaa	360
ccttggtgac	tgagttggcc	ggcag				385

<210> 403

<211> 440

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(440)

<223> n = A,T,C or G

<400> 403

ctgtttaacc	agnaaccggg	ggggtcaccc	cccacagaat	gtacatgaaa	cactagagga	60
ctgcatgttt	ttccctgaga	gaagcgtaag	acaaacagaa	gtcaaaaagt	agtcactggg	120
agcgcacatc	ttctaagcaa	atcctccctt	tcccttttgg	aggatttgcc	cgaactacgt	180
agccagtcag	cacttagacc	acctgcctcc	ccccccccc	ataaaccac	cactcccttc	240
ctcctttccc	aaaccacttg	gggtgtccta	agccctcact	gccccaaagg	caaaatatca	300
gctaagatcc	ttgtcagtat	ttccacagtc	atacctaata	aattgggaag	tggggccccc	360
aaaaaccaat	tcacatctat	gcacttggtt	ccactggatt	tggcagacag	gcttttttag	420
ttaccgtaac	cagatcttaa					440

<210> 404

<211> 239

<212> DNA

<213> Homo sapien

<400> 404

cctacgaaaa	actcccggcc	ggtgaagaga	acgtcagtcg	catccagcgt	cgcgttctcg	60
tctctatttt	ccacaattcg	gagccccagg	tcttgagggg	ctttgaggac	tccatcgacc	120
tctggcctac	gagcggggct	ccagggccgc	gtgattaggg	ccgtgtcccc	ttggatcacg	180
gccgtgtcgc	caagcagcgg	tcccagcggc	aatgactcct	caggtggcag	ttctagcag	239

<210> 405

<211> 261

<212> DNA

<213> Homo sapien

<400> 405

ctggagaggc agcccttcac cggatgcccc gctcgtgcc cctgcggggc ccagcacagt	60
ttaccttctc cccccacggc ggteccatct actctgtgag ctgttcccc ttccacagga	120
atctcttctt gacgctggg actgacgggc atgtccacct gtactccatg ctgcaggccc	180
ctcccttgac ttcgctgcag ctctccctca agtatctgtt tgctgtgcgc tggccccag	240
tgcgccctt ggtttttgca g	261

<210> 406

<211> 641

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (641)

<223> n = A,T,C or G

<400> 406

ctgctccggg gcntgggtggc agcaagtaga catcgggcct gtgcagggcc acccccttgg	60
gccgggagat ggtctgttcc agtggcgagg gcaggctctgt gtgggtcacg gtgcacgtga	120
acctctcccc ggaattccag tcatactcgc agatgctggc ctacccacg gcgctgaaag	180
tggcattggg gtggctctcg gagatgttgg tgtgggtttt cacagcttcg ccattctggc	240
gggtccagga gatggtcacg ctgtcatagg tggtcaggtc tgtgaccagg caggccaact	300
tgggtggaatt ggtgaggaag atgctggcaa aggatggggg gatggcgaag acccgatgg	360
ctgtgtcttg atcgggggaca cacatggagg acgcattctg ctggaaggtc aggcacctgt	420
gateccagcg gcagggtgaac atgctctggc tgagccagtc gctctctttg atggtcagtg	480
tgttggtcac ctgttaggtc gtgggcccag actctttggc ctacagctgc acctggtcgg	540
tgggtgaggg agaccccacc tgcttcccc ctgcgcagcca ggacacctga atctgccggg	600
gactgaaacc cgtggcctgg cagatgagct tggacttgcy g	641

<210> 407

<211> 173

<212> DNA

<213> Homo sapien

<400> 407

ccagggtactg gcacaatcat gtctggatgg ggggtgggtgt gtctgtagg cagagaaaca	60
ggaaattgtc gtatgcagta tcgagcagcg tggcctcggt cggcaccgta tagttgatct	120
tgaacttctt tggattctca gtcttctctc caaggacctt cttctcaaca cag	173

<210> 408

<211> 165

<212> DNA

<213> Homo sapien

<400> 408

ccaactgtctg cagccatggc agaaagtgtc caaagtcacg caccttcaca ttcatctcat	60
cactcttggg gttccccagg accttgagca cctcggcggt ggtagggttc tggccccagg	120
ccctcatcac atccccacac tggctgtaca ggatcttgcc atcac	165

<210> 409

<211> 329

<212> DNA
<213> Homo sapien

<400> 409
ctgtagcttc tgtgggactt ccactgctca ggcgtcaggc tcagatagct gctggccgcg 60
~~tacttgttgt tgccttcttc ggagggtctg gtcgtctcca ctccggcttc gagggggtg 120~~
ctatctgctt tccaggccac tgtcacggct cccgggtaga agtcacctat gagacacacc 180
agtgtggcct tgttggcttg aagctcctca gaggagggcg ggaacagagt gaccgagggg 240
gcagccttgg gctgaccaag gacggtcagc ttggtcctc cgccaaatac cgccggataa 300
gcaccactgt tgtctgctga ttgacagaa 329

<210> 410
<211> 235
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(235)
<223> n = A,T,C or G

<400> 410
ccatcagnga gaaaggtggt tgtcagttgt ttcacaaacc agattgagga ggacaaactg 60
ctctgccaat ttctggattt ctttattttc agcaaacact ttctttaaag ctgactgtg 120
tgggcaactca tccaagtgat gaataatcat caagggtttg ttgcttgtct tggatttata 180
tagagctttt tcatatgtct gagtccagat gaggttggtc ccccaacctc tggag 235

<210> 411
<211> 294
<212> DNA
<213> Homo sapien

<400> 411
aattaaggga agatgaagat gataaaacag ttttggatct tgctgtggtt ttgtttgaaa 60
cagcaacgct tcggtcaggg tatctttttac cagacactaa agcatatgga gatagaatag 120
aaagaatgct tcgcctcagt ttgaacattg acctgatgc aaagggtggaa gaagagcctg 180
aagaagaacc tgaagagaca gcagaagaca caacagaaga cacagagcaa gacgaagatg 240
aagaaatgga tgtgggaaca gatgaagaag aagaaacagc aaaggaatct acag 294

<210> 412
<211> 433
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(433)
<223> n = A,T,C or G

<400> 412
cctgagaagc cagaggcagg tggagagggg gtggaaagtg agcagcgggc tgggctggag 60
ccgcacacgc tctctccca tgttaaatag cacctttaga aaaattcaca agtccccatc 120
cacaaaaaaa aaaanaanaa aaatttcagg gantaaaaat anactttgaa caaaaaggaa 180
catttgntgg cctggggggg catctnantt tntntagcnc cagngattcc ctcccnccc 240
cacccatcac atanatgtaa cacctttggt ntaaaatggg gagccgtttc caccntgccc 300

```

centccccgc cccagggcag ttgccccggn gacacntcaa gacaggancg aggtagtntt      360
tcancancac agttncacaa ggaacagaaac agtntctccc gccagccct gcggcacaag      420
ggattgacac gcn                                     433

```

```

<210> 413
<211> 494
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(494)
<223> n = A,T,C or G

```

```

<400> 413
ccttattttct cttgtcnctt cgtacagggg ggaatttgaa gtagatagaa accgacctgg      60
attactccgg tctgaactca gatcacgtag gactttaatc gttgaacaaa cgaaccttta      120
atagcggctg caccatcggg atgtcctgat ccaacatcga ggtcgtaaac cctattgttg      180
atatggactc tagaatagga ttgcgctgtt atccctaggg taacttggtc cgttggtcaa      240
gttattggat caattgagta tagtagttcg ctttgactgg tgaagtctta gcatgtactg      300
ctcggagggt gggttctgct ccgagggtcg cccaaccgaa atttttaatg caggtttggg      360
agtttaggac ctgtgggttt gttagggtact gtttgatta ataaattaaa gctccatagg      420
gtcttctcgt cttgctgtgt tatgcccgcg tcttcacggg cagggtcaatt tcaactggta      480
aaagtaagag acag                                     494

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```

<210> 414
<211> 294
<212> DNA
<213> Homo sapien

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<400> 414
ctgggcggat agcaccgggc atattttgga atggatgagg tctggcaccc tgagcagttc      60
agcgaggact tggctcttagt tgagcaattt ggctaggagg atagtatgca gcacggttct      120
gagtctgtgg gatagctgcc atgaagtaac ctgaaggagg tgcggtggg taggggttga      180
ttacagggtt gggaacagct cgtacacctg ccattctctg catatactgg ttagtgaggt      240
gagcctggcg ctcttctttg cgctgagcta aagctacata caatggcctt gtgg      294

```

```

<210> 415
<211> 421
<212> DNA
<213> Homo sapien

```

```

<400> 415
ccttgccctt gccctccac gaatggttaa tatatatgta gatatatatt ttagcagtga      60
cattcccaga gagccccaga gctctcaagc tctttctgt cagggtgggg ggttcagcct      120
gtcctgtcac ctctgaggtg cctgctggca tctctcccc catgcttact aatacattcc      180
cttccccata gccatcaaaa ctggaccaac tggcctcttc ctttcccttg ggaccaaatt      240
ttaggggctt cagtccttca ccgccatgcc ctggcctatt ctgtctctcc ttcttcccc      300
tggcctgttc tgtctctgag ctctgtgtcc tccgttcatt ccattggctgg gagtcaactga      360
tgctgcctct gccttctgat gctggactgg ccttgcctct acaagtatgc ttctcccaca      420
g                                     421

```

```

<210> 416
<211> 342
<212> DNA

```

140

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(342)

<223> n = A,T,C or G

<400> 416

ccacttttctt	tcccacnctg	gaaggcgga	tetatgactt	cattggggag	ttcatgaagg	60
ccagcgtgga	tgtggcagac	ctgataggtc	taaaccttgt	catgtcccgg	aatgccggca	120
agggagagta	caagatcatg	gttgcctgccc	tgggctgggc	cactgctgag	cttattatgt	180
cccgtctgac	tcccctatgg	gtcggagccc	ggggcattga	gtttgactgg	aagtacatcc	240
agatgagcat	agactccaac	atcagctctgg	tccattacat	cgtcgcgtct	gtccaggtct	300
ggatgataac	acgctatgat	ctgtaccaca	ctttccggcc	gg		342

<210> 417

<211> 389

<212> DNA

<213> Homo sapien

<400> 417

tattaattag	gttcttaaga	catttagaac	accaatttgt	gaggataaat	tccattcgctc	60
agagcaaaaa	cagatcgag	gtagccctgg	agctgaggaa	tagctttgat	ttttggtaaa	120
atttgtgagt	ccacagcttt	ctgatcaatc	ttgcgctgct	ccgtaatctc	atatttctct	180
ttttctgtgt	cgaagatctc	accttctctg	tgtctgggct	tccgcagctt	cttcttcttg	240
aagtaagcat	cagtaagatg	ttttgggatt	tttacattgc	tgatatcgat	tttgggtgaa	300
gtggcaatga	caaattctctg	gtgtgttctt	cgtagaggaa	ctcgattgag	gaccagaggt	360
ccagtcacaa	gtaataagcc	actagccag				389

<210> 418

<211> 343

<212> DNA

<213> Homo sapien

<400> 418

gtgggaggga	gccaggttgg	gatggaggga	gtttacagga	agcagacagg	gccaacgtcg	60
aagccgaatt	cctggctctg	ggcaccaacg	tccaaggggg	ccacatcgat	gatgggcagg	120
cgggaggctc	tgggtggttt	gtattcaatc	actgtcttgc	cccaggctcc	ggtgtgactc	180
gtgcagccat	cgacagtgc	gctgtagggt	aagcggctgt	tgcctcggc	gcggatctcg	240
atctcgttgg	agccctggag	gagcagggcc	ttcttgaggt	tgccagctcg	ctggtccatg	300
taggccacgc	tgtttttgca	gtggtaggtg	atgttctggg	agg		343

<210> 419

<211> 255

<212> DNA

<213> Homo sapien

<400> 419

cctagcaaga	gaatcaccaa	atttatggag	agttaacagg	ggtttaacag	gaaggaagtg	60
ccttttagtaa	gttctcaagc	cagaggctgg	aggcagcagc	taaatcagag	gacagcatcc	120
tcagtgaag	tgagccattc	ggggtggcat	gtcactccag	gaataaacac	aacttagaaa	180
caaatgattt	cgtaggatag	cacagtgcac	tgggtgactg	tgaacctgag	gccactgtgt	240
caaaactgtgc	actgg					255

<210> 420

<211> 261
 <212> DNA
 <213> Homo sapien

<400> 420
 cttctgatga taaccaaccc ctactacca ctctgtattc atcaggggag gggatataaac 60
 cccacatgca agaagaaccc ttgccccag tgtcaaatgg gatggggatg cttagagttat 120
 agtaaagggg aaacctatg taagctgtta acagagttca caggggtagg gataacccct 180
 gttctccagc tcccaaatgt gctcactttc ccagcttctt catccgttca tcaatgctgg 240
 caaagttccc ctcaactgtg g 261

<210> 421
 <211> 179
 <212> DNA
 <213> Homo sapien

<400> 421
 ccttctctgtt gttgtttcaa atgctgcttg atttctcgta acagatctgc atctatgtaa 60
 tacctttctt cagatctgac tgcctcaaaa tgattctgca tcttgatttg agacatcaat 120
 tcatttagtc ggccttgaa ctgagtaggt gcatttagtt caccctgaat cgtatccag 179

<210> 422
 <211> 424
 <212> DNA
 <213> Homo sapien

<400> 422
 cgagggtccaa atctgatctg cagatgcaga agattcgaca gaagctgcag actaaacagg 60
 ctgccatgga gaggtctgga aaagctaagc aactgcgagc acttaggaaa tacgggaaga 120
 aggtgcaaac ggaggttctt cagaagaggc agcaggagaa agcccatatg atgaatgcta 180
 ttaagaaata tcagaaaggc ttctctgata aactggattt ccttgaggga gatcagaaac 240
 ctctggcaca gcacaagaag gcaggagcca aaggccagca gatgaggaag gggcccagtg 300
 ctaaacgacg gtataaaaaac cagaagtttg gttttggttg aaagaagaaa ggctcaaatg 360
 ggaacactcg ggagagctat gatgatgtat ctactctccg ggccaagaca gctcatggca 420
 gagg 424

<210> 423
 <211> 256
 <212> DNA
 <213> Homo sapien

<400> 423
 ctgtggccta gggctacctc aagactcacc tcactcttac cgcacattta aggcgccatt 60
 gcttttgga gactggaaaa gggaaggtag ctgaaggctg tcaggattct tcaaggagaa 120
 tgaatactgg gaatcaagac aagactatac cttatccata ggccaggtg cacaggggga 180
 ggccataaag atcaaacatg catggatggg tcttcacgca gacacaccca cagaaggaca 240
 ctagcctgtg cagcgc 256

<210> 424
 <211> 330
 <212> DNA
 <213> Homo sapien

<400> 424
 ccagccgcat gggagtggag gcagtcactg ccttgctaga ggccaccccg gacacccag 60

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cttgcgtcgt gtcactgaac ggggaaccacg ccgtgcgcct gccgctgatg gagtgcgtgc 120
agatgactca ggatgtgcag aaggcgatgg acgagaggag atttcaagat gcggttcgac 180
tccgagggag gagctttgcg ggcaacctga acacctacaa gcgacttgcc atcaagctgc 240
cggatgatca gatcccaaag accaattgca acgtagctgt catcaacgtg ggggcacccg 300
cggtcgggat gaacgcggcc gtacgctcag 330

```

```

<210> 425
<211> 333
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(333)
<223> n = A,T,C or G

```

```

<400> 425
ctgctccatg gntctaaagt cagcaccacc cacaccacac atgatcactg acatgggcag 60
gttcgaggga cgcaccacag cctcacgtgt ggcttccaca tccgtcacag caccatcagt 120
cagnagaaac agnatgaagt attgngaggc antccccctga tgtgcagcct gggctgcaaa 180
cctggacctg cccgggcggc cgctcgaaag ggcgaaattcc agcacactgg cggccgttac 240
tagnggatnc agantcggg acnaagcttg gcagtaatca tggtcatagc tgtttcctgt 300
gagcggntgg gatgaacgag gccgtacgct cat 333

```

```

<210> 426
<211> 411
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(411)
<223> n = A,T,C or G

```

```

<400> 426
gggtgttcat catgaggatt gcttctgccca tggagctgat ggacgtgggc aggttgctga 60
gaaggtgggg tggaagttag tgcggggggg gggtgagtg cctgggtcttg ttcatagggg 120
agcctttccc tagcagtgga acgctgtggt cattttctct agcatattcc cttgggaagt 180
ctagatttgc tattaatctg gctgagaatc taagtctctgt gccttagaga cagtttgcac 240
tttcccatat tgtgcctggg acagccatat gatttttttt cccaccaaac aagtatgcaa 300
acagaaaacca gttcaaaggg ggatggtgta aaagatgagg cagtanaaat gcctttgaat 360
ggttttctgt agctaattct ctttaaattt tgtcctgctt tttttcttta t 411

```

```

<210> 427
<211> 450
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(450)
<223> n = A,T,C or G

```

```

<400> 427
acgtgtacaa gtttgaactg gatacctctg aaagaaagat tgaatttgac tctgcctctg 60

```

```

gcacctacac tctctactta atcattggag atgccacttt gaagaaccca atcctctgga      120
atgtggctga tgtggncatc aagttccctg aggaagaagc tccctcgact gtcttgtecc      180
agaacctttt cactccaaaa caggaaattc agcacctgtt ccgcgagcct gagaagaggc      240
ccccaccgtt ggtgtccaat acattcactg ccttgatcct ctgcgccgtt cttctgtctt      300
tcgctctgtg gatccggatt ggtgccaatg tctccaactt cacttttgct cctagcacga      360
ttatatttca cctgggacat gctgctatgc tgggactcat gtatgtctac tggactcagc      420
tcaacatgtt ccagaccttg aagtacctgg

```

<210> 428

<211> 377

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (377)

<223> n = A,T,C or G

<400> 428

```

cagggctata gtgcgctatg ttgatctggt gttcatgcta agttccgcat caatatgggtg      60
acttcttggg agtgggggac caccagggtg cctaaggagg ggtgaacctg cctacgttgg      120
aaatagagct ggncaaaaact cctgtgctca tcagtagtag aattgcacct gtgaatagcc      180
nccgccctcc agcatgggca acataacaag accctgcctc ttaaagataa aaattggaaa      240
acactngtag gaaaaaaaagg gtgnttggtc taaataaatn tggattgggn ataaatgaen      300
caaaactatc atgaatttga aagcntttct aatttcttga aagtctgaaa aaagttaaan      360
cncaatttta tctnaaa

```

<210> 429

<211> 206

<212> DNA

<213> Homo sapien

<400> 429

```

gttgtctctc caaagaaggt tggtttcaag gccgtgtcca gggacccacg agcagaggca      60
ctgggggggca agggatctcc aaggggggcaa gggatcccta aagggggtag ctccacaggtg      120
aggggggttta gggccctctt agggagcgcc tgaggccata cattcaagag tgtccctggt      180
gaggccacag gaagagccag gactgg

```

<210> 430

<211> 473

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (473)

<223> n = A,T,C or G

<400> 430

```

ccttatttnt cttgtccttt cgtacagggg ggaatttgaa gtagatagaa accgacctgg      60
attactccgg tctgaactca gatcacgtag gactttaatc gttgaacaaa cgaaccttta      120
atagcggtct caccatcggt atgtcctgat ccaacatcga ggtcgtaaac cctattgttg      180
atatggactc tagaatagga ttgcgctggt atccctaggg taacttgttc cgttgggtcaa      240
gttattggat caattgagta tagtagttcg ctttgactgg tgaagtctta gcatgtactg      300
ctcgagaggtt gggttctgct ccgaggtcnc cccanccgaa atttttaatg caggtttggt      360

```

agntnaggac ctgtgggttt gttagggtact ggggtgcatta ataaattaaa gtcctcatagg 420
gtcttctcgt cttgctgtgt tatgcccnc ctttcacggg caggtcaatt tca 473

<210> 431

<211> 215

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(215)

<223> n = A,T,C or G

<400> 431

cctgtat:aa gctanaaaaa gactaccagc ccgggatcac cttcatcgtg gtgcagaaga 60
ggcaccarac ccggtcttc tgcactgaca agaacgagcg ggttgggaaa agtggaaaca 120
ttccagcagg cagcactgtg gacacgaaaa tcaccacccc caccgagttc gacttctacc 180
tgtgtagtca cgctggcatc cagggggacaa gcagg 215

<210> 432

<211> 391

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(391)

<223> n = A,T,C or G

<400> 432

ccagcactgc cacaaacttt ttcagggcca ccaggecgtg cccttccagg accgggaacc 60
tgcccacttc tatccgcagg atgtagtga gtgcagattc caggtcagcc atgtagatcc 120
tggagcgatc tgccaatttc caaacagtgg gagctatctt gttagcagtg gttggtgcaa 180
ctgtggtctg ggcagcctcc ctggtgagcc cagagagtct ctgcaggtaa gcggtataga 240
aggacctgga ttccatgagc acggggactc gggagacgga gccattccgg aacagcaggt 300
agcaagaggg gaagtcggtg acaccaaact ttctcaccac attggcctct gtgttcagca 360
ccctgcgcac cgccacncc ttgtgctggg a 391

<210> 433

<211> 420

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(420)

<223> n = A,T,C or G

<400> 433

ctgtagcttc tgtgggactt ccactgctca ggcgtcaggc tcagatagct gctggctgcg 60
tacttgttgt tgctttgttt ggagggtgtg gtggtctcca ctccgcctt gacggggctg 120
ctatctgctt tccaggccac tgcacggct cccgggtaga agtcacttat gagacacacc 180
agtgtggcct tggtggcttg aagctcctca gaggagggcg ggaacagagt gaccgagggg 240
gcagccttgg gctgacgtag gacggttagt ttggnccctc cgccgaatgc cgcanttcta 300
ctgtcccaca cctgacagta atagtcancc tcattcttcg cttgggctct gctgatggtc 360

agggtggccc gtgntccccg agttggagcc aggggaatcnc tcagggatcc canagggccn 420

<210> 434
 <211> 239
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(239)
 <223> n = A,T,C or G

<400> 434
 ccaaccanga gagaagggat cgcttgggtgc ccagggccca ccaggagctc caggccact 60
 tgggattgct gggatcactg gagcaacggg tcttgacgga ccaccaggca tgccaggctc 120
 taggggaagc cctggccctc aggggtgtcaa gggtgaaagt gggaaaccag gagctaaccg 180
 tctcagtggg gaacgtggnc cccctggacc ccagggtctt cctgggtctgg ctgggtncag 239

<210> 435
 <211> 415
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(415)
 <223> n = A,T,C or G

<400> 435
 ctgtccaatg gcaacaggac cctcactcta ttcaatgtca caagaaatga cgcaagagcc 60
 tatgtatgtg gaatccanaa ctcaagtgtg gcaaaccgca gtgacccagt caccctggat 120
 gtctctatg ggcgggacac ccccatcatt tccccccag actcgtctta cctttcggga 180
 gcaaacctca acctctcctg ccaactcgcc tctaaccat cccncanta ttcttggcgt 240
 atcaatggga taccgcagca acacacacaa gttctnttta tcgccaaaat cagccaaat 300
 aataacggga cctatgcctg tttagggntn taacttggt actggccgca anaattccat 360
 agtcaagagc atcacagnct ctgcatntgg aacttctcct ggetntcaga cctgn 415

<210> 436
 <211> 152
 <212> DNA
 <213> Homo sapien

<400> 436
 ccaggattga caggccatcc attcacagcc aggagatgct gggccagtc ctccaagagg 60
 tctccgtcat ggcagtgatg aaaacctaac aggggtggccc cctgtgccag ctcaggtgac 120
 tggagcccga ggcctgaca ggttcccaga ag 152

<210> 437
 <211> 174
 <212> DNA
 <213> Homo sapien

<400> 437
 ccagggtactg gcacatcatg ctctggatgg ggggtgggtgt gtcctgtaag cagagaaaca 60
 ggaaattgtc gtagtcagta tcgagcagct gtggcctcgt tcgccaccgt atagttgatc 120

ttgaacttct ttggattctc agtcttctct ccaaggacct tcttctcaac acag

174

<210> 438

<211> 485

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(485)

<223> n = A,T,C or G

<400> 438

ccacggccct	ctcggccctc	tcgctgggag	eggagcagcg	aacagaatcc	atcattcacc	60
gggctctcta	ctatgacttg	atcagcagcc	cagacatcca	tggtacctat	aaggagctcc	120
ttgacacggg	caccgcccc	cagaagaacc	tcaagagtgc	ctcccggatc	gtctttgaga	180
agaagctgcg	cataaaatcc	agctttgtgg	cacctctgga	aaagtcatat	gggaccaggc	240
ccagagtect	gacgggcaac	cctcgcttgg	acctgcaaga	gatcaacaac	tgggtgcagg	300
cgcagatgaa	aggggaagtc	gcenggtcca	caaaggaaat	tcccgatgag	atcagcattc	360
tccttctcgg	ngtggcgcac	ttcaaggggc	agngggtaac	aaagtttgac	tncagaaang	420
acttccctcg	aggatttcta	cttggatgaa	gagaggaccg	tgaggggtccc	catgatgtcg	480
gaccc						485

<210> 439

<211> 317

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(317)

<223> n = A,T,C or G

<400> 439

gggcccgttt	ccctccatc	gtggggcgcc	ccaggcacca	gggcagtgat	gggtgggcatg	60
ggtcagaagg	attcctatgt	gggcgacgag	gccagagca	agagaggcat	cctcaccttg	120
aagtacccca	tcgagcacgg	catcgncacc	aactgggacg	acatggagaa	aatctggcac	180
cacaccttct	acaatgagct	gcgtgtggct	cccaggagagc	accccggtgt	gctgaccgag	240
gccccctga	accccaaggc	caaccgenag	aagatgaccc	agatcatgtt	tgagaccttc	300
agcaccacag	ccatgta					317

<210> 440

<211> 338

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(338)

<223> n = A,T,C or G

<400> 440

ccanaaagac	ttcccaggga	agatgcttgg	ctctctgctc	caaggtgggc	catggtatag	60
ggccctcgaa	gggcttgtgg	ctgggggtgat	cccagggggc	attgctcaaa	gtgcacagga	120
gggtggcagca	gggtcaggcg	agttcctgtt	ccaggggacat	caggagggag	ggtagaagcc	180

tagggagtgt gcgaggctgc tgggatgagg gagctcaggg gctaccagct aaccagcctc	240
agctcaatgg tttctccatc cttgggtctg tagtcagcaa taccttgcaa cagtgggggtg	300
ttgggggtctc ggagaagctg ccagaactcc ctttctcc	338

<210> 441
 <211> 505
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(505)
 <223> n = A,T,C or G

<400> 441	
ccacacagan tcaccaagcc acagacttgt cttccacaag cacgttctta tcttagccac	60
gaagtgacca agccacacgt actaaagggt gaactcaaag atatgtacag ggtattaaac	120
aaataccaag gggaacagtt aacttcaata caaggctgaa atcagcaaca agttctacaa	180
tccagnctg atatcagata caagcttcaa ggacaatttc ttttcgaagg cttattccag	240
tttcgngagg ctagcatgag gtgtgtgcat ttgccagggg caaatttcta ttctcaatta	300
acccatgcag caaatgctac ncatgggtgcn gagtccgttt agaagcattt gcggtggacg	360
atggaggggc cgcactcgtc ttactcctgc ttgctaatcc acnngngctg gaaggnggac	420
agtgaggcca cggatggagc caccnatcca caccgagtno ttgcgctctg ggggtgcgat	480
natnttgatc ttcattggtgc tgggc	505

<210> 442
 <211> 386
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(386)
 <223> n = A,T,C or G

<400> 442	
cgccagggtga tacctccgcc ggtgacccag gggctctgcg acacaaggag tctgcatgtc	60
taagtgtctag acatgctcag ctttgtggat acgcggaactt tggtgctgct tgcagtaacc	120
ttatgcctag caacatgcca atctttacaa gaggaacccg taagaaaggg cccagccgga	180
gatagaggac cacgtggaga aaggggtcca ccaggccccc caggcagaga tgggtgaagat	240
ggccccacag gccctcctgg tccacctggt cctcctggcc cccctggtct cgatgggaac	300
tttgctgctc agtatgatgg aaaaggaggg nggacttggc cctggaccaa tgggcttaat	360
gggacctana ggccccctg gtgcag	386

<210> 443
 <211> 404
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(404)
 <223> n = A,T,C or G

<400> 443

```

cctccctctc agagcttgcc ccaggggactc tctggccctc aggggttcaat gtattctgac      60
caaggccaag ctttccctggg gctcagggaa aatcacactt tgctaccga agctgtatcc      120
cctcagatgc caggaaggcc gtgatcatct gactccaccc tctgagaca cattctctcc      180
ctgactgtcc tgttctaagt cagcggagca ccttaggatg gaggggtgga ggcgaggcca      240
ngatgcagcc tctgtgaaca ggtgcctgga ggctgggaaa tgaccctgag agggcaggac      300
acagcnaccg ngggcttaag gtcaggggngg agagcaagnt tggcccaatt tcccccttc      360
gntcagagcc ancccctaac atggnnggca tttattcatt tcgg      404

```

```

<210> 444
<211> 318
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(318)
<223> n = A,T,C or G

```

```

<400> 444
catgggctat agtgcgctat gttgatctgg tgttcattgct aagtctccgca tcaatatngc      60
gacttcttng gagtggggga ccaccangtt gcctaaggag ggggtgaacct gcctacgttg      120
gaaatagagc tgggtcaaac tctgtgtctc atcagtagta gaattgcacc tgtgaatagc      180
caccgccctc cagcntgggc aacatagcaa gacctgcct cttaagataa aaattggaaa      240
aacttggtan gaaaaaaagg ctgtttggtc taaanaagtc tggatngggc ataaatgaca      300
cnaancatc atgactnt      318

```

```

<210> 445
<211> 418
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(418)
<223> n = A,T,C or G

```

```

<400> 445
ccagtcacaac ctgctcctca ttattgtata aatgagcaga atcaatatgg cggaagccag      60
cttcaattgc caatttggtg gcctctaaag ctttactttt aggaacctct gcaggcgcat      120
aggtgccaaa tcccaggaca ggcattgaagt gacctcatt cagcttcaca cactgatatt      180
tcgaatccat ttctgtcact agcctggctg gcaaattgtt ctttcttctt ccttcacagg      240
ctataagagc aatgagctgg caacgcccc gagcacactg tctgctgntt aaccaatggc      300
atgtgagagg agggacagag gcagtccttac acaagctgtg ataaaaattg catncagttc      360
aaccagtttc ttacnttatt ctaatgngna ggaagtgtgn gaagagcaca aagtcaga      418

```

```

<210> 446
<211> 361
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(361)
<223> n = A,T,C or G

```

<400> 446
 ctgtccaatn acaacaggac cctcactcta ctcagtgtca caaggaatga tgtaggaccc 60
 tatgagtgtg gaatccanaa cgaattaant gttgaccaca gcgacccagt catcctgaat 120
 gtccctctatg gccacagcga ccccacntt tccccctcat acacctatta ccgtccaggg 180
 gtgaacctca gentctcctg ncatgcagcc tctaaccacac ctgcacagta tccctggctg 240
 attgatggga acntccagna acacnacaca agagctcttt atctccanct tnaactganaa 300
 gaacagcgcg actctatncc ttccaggggg ggggggtggg gnntgnggac cttncggggc 360
 c 361

<210> 447
 <211> 321
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1) ... (321)
 <223> n = A,T,C or G

<400> 447
 ccagganant gggtccccc aaaggagacct acccgcccc agctctggag ccgttgacgc 60
 tcgcatccag gacatttgag atgggaatcc aaataggcta cttgnaaaag acgtgctgca 120
 ngcagccctg gagagactca tggagttcat tgtacattac tccatctacc gaggcagcgc 180
 atggcatgac tnaacggctt gnaacaaaca canaaattac caccacaaac attcaggaac 240
 caaatatuaat ctgcatggt cacaccacag acaatgcagg aagaggcttt ttattgctng 300
 ngtgngtctt caaatcatgt t 321

<210> 448
 <211> 325
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1) ... (325)
 <223> n = A,T,C or G

<400> 448
 ccagcttcaa ctttttagta tagaagatac aggatcaca aaaggagact acgctttgca 60
 aacatagcat caaaattcaa cttttctctt tgcagtttat ccattgngtc agcatacctt 120
 gcaagggaag ctacttacat caaataactt ttctatatac atttctcat tgaccttttc 180
 tcaaagaata tcttggtttt gccgaacaaa cataatatag gngtctgcca gatccattcc 240
 tggtttctgt ngtgaaggaa aagcaggggg aacaaaataa tatcagggtc tcaatngtga 300
 nattattatt taatcatacc ctgan 325

<210> 449
 <211> 123
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1) ... (123)
 <223> n = A,T,C or G

[illegible]

```
<210> 450
<211> 328
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(328)
<223> n = A,T,C or G
```

<400>	450						
ctggcaattt	tgagctgcgc	gttatacacc	aaaatgttct	gttcagtacc	tagctctgct		60
cttttatatt	gctttaaatt	tttaaagaaa	ttatattgca	tggatgtggt	tatttgtgca		120
tattttttaa	caatgcccaa	tctgtatgaa	taatgtaaac	ttcgattttt	ttttaaaaaa		180
attagatttt	agctggagct	tttgactaat	gtaaagtaaa	tgccaaacta	ccgacttgat		240
ngggatgttt	ttgtaangtt	aattttctaa	gactttttca	catccaaagt	gatgctttgc		300
tttgggtttt	aactgtttca	acntnggn					328

```
<210> 451
<211> 209
<212> DNA
<213> Homo sapien
```

```

<400> 451
ctgccttggt tcaacagaca tgcaaagatc ctaggagaca glcccccatag accttcagac    60
attaaaaaag gagccgtaca gtttgtttga agcacttcgt cttaccocatt tatgcagggg    120
cccaggaa cttacacaca gccagaatga ggttcccaaa ggacttacat taattatggc    180
tttgccttcc ttccacaaat gagctgagg                                209

```

```
<210> 452
<211> 457
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(457)
<223> n = A,T,C or G
```

<400>	452						
ctgtctantc	ccttcaagag	ctgtttatag	aagcttgaga	atgggggtaa	aatttctgct		60
agcaaaatca	agttcttttt	gaaattttat	cagtaatcca	gaatttagta	gtccatgcct		120
tctcactcag	catttagaaa	taaaaatgtg	gtttcttaaa	cgtatatcct	ttcatgtata		180
tttccacatt	tttgtgcttg	gatataagat	gtatttcttg	tagtgaagtt	gttttgtaat		240
ctactttgta	tacattctaa	ttatattatt	tttctatgta	ttttaaatgn	atatggctgt		300
ttaatctttg	aagcattttg	ggcttaagat	tgccagcacc	acacatcaga	tgcagtcatt		360
gttgctatca	gtgtggaatc	tgatagagtc	tngactccgg	ccacttgagg	ttgtgnactc		420
caaagctaag	gacagtgatg	aggaagatgg	catgtgg				457

<210> 453

<211> 277
 <212> DNA
 <213> Homo sapien

<400> 453
 ccaattgatt tgatggtaag ggagggatcg ttgacctcgt ctgttatgta aaggatgcgt 60
 agggatggga gggcgatgag gactaggatg atggcgggca ggatagttca gacggtttct 120
 atttcctgag cgtctgagat gttagtatta gttagttttg ttgtgagtgt taggaaaagg 180
 gcatacagga ctaggaagca gataaggaaa atgactacga gggcgtgac atgaaagggtg 240
 ataagctctt ctatgatagg ggaagtagcg tcttgta 277

<210> 454
 <211> 198
 <212> DNA
 <213> Homo sapien

<400> 454
 gttaaaagat agtaggggga tgatgctaata aatcaggctg tgggtgggtg tgttgattca 60
 aattatgtgt tttttggaga gtcattgtcag tggtagtaata ataattgttg ggacgattag 120
 ttttagcatt ggagtaggtt taggttatgt acgtagtcta ggccatatgt gttggagatt 180
 gagactagta gggctagg 198

<210> 455
 <211> 608
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(608)
 <223> n = A,T,C or G

<400> 455
 ctgagcaagc taaggaccag gggcaactag accctaataa tngtacttt tgaaaatgat 60
 acaaaactacc ttggttgtaa gaagtgcagg ttgaacactt taggagaaca gtcttcaaac 120
 tggcaattca aaatttccca ttatatgtga ataaaattgg aaggatgtta aatgtccatg 180
 gaaagtact cttgtaagtt aggatgcctt atactgaggc tttanaatga aagtacactt 240
 cacaaatgga atagtgaaca taaattacca gaagtcaaga taatagtcac actagtaagg 300
 taagcaaggc aaattccctt atacacaaaa attattttga tgacctttt caataatgaa 360
 tctgaaatga agtgttttaa aaagctccct aaacacaaaa cgaacataaa actgcttaat 420
 aacttttagag ctcatgtaat attcttgcgt aaaacagtta ctgaaattac cagcgaaatg 480
 atggaatata tttaaagcag gncactcngt ataactctgga ataatttcat ttgctaactt 540
 ttaagaagta ttctctggac tataaatcct gggcaaatag acttccactt tattattacc 600
 ccaaatta 608

<210> 456
 <211> 467
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(467)
 <223> n = A,T,C or G

<400> 456
 cctggacctg tgtaaacctt caaacactct tttttacatt aggtcgtgaa gttaaatttt 60
 ttactgtttc tgtgctacag actcttcaaa gggaaatagt taagtcaatt tcaaagaaaa 120
 tgaccagcac atttttaaaa cattagaaat gatttgactt tgactatcta ctgccaaaaa 180
 aagggttaagg aatttgtaat gagaagctaa aaactttaag gaattttaag gaactcaaaa 240
 caaaaactca ttaaatgtaa ttaagcgaa ttttacaat ~~aaagctctc~~ ~~caaaatttca~~ 300
 tataatagtc acttaagact taaattcaaa cactagcaaa ccacaaaatc agactgtntg 360
 actgacatcc aaaagataaa tataaatcaa aatccgaccc cagcattagc caaggggtag 420
 gtgttctct tgaggaaggc aggaattcct cttctgccac ctgttg 467

<210> 457
 <211> 183
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(183)
 <223> n = A,T,C or G

<400> 457
 ccaaattttt tacttttaaac actgaaaaca gaggaagtta ataaaaattt taacctataa 60
 agtcccttgg ttgttagtca ttaacagcag attgtcagat aagactggta aaatgatggc 120
 tgctaagcat ttgatgatcc aggcgcagga tgatcaaaact gcagcagatc atgcacgtga 180
 cag 183

<210> 458
 <211> 445
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(445)
 <223> n = A,T,C or G

<400> 458
 gaaaaatata aagccaaaaa ttggataaaa tagcactgaa aaaatgagga aattattggt 60
 aaccaattta ttttaaaagc ccatcaattt aatttctggt ggtgcagaag ttagaaggta 120
 aagcttgaga agatgagggt gtttacgtag accagaacca atttagaaga atacttgaag 180
 ctagaagggg aagttgggta aaaatcacat caaaaagcta ctaaaaggac tgggtgtaatt 240
 taataaaaaa taaggcagaa ggtttttgga agagttagaa gaatttggaa ggccttaaatt 300
 atagtagctt agtttgaaaa atgngaagga ctttcgtaac ggaagtaatt caagatcaag 360
 agtaattacc ancttaattg ttttggcatt ggactntgag ttaagattat tttttaaatc 420
 ctgaggacta ncattaatgg gacag 445

<210> 459
 <211> 426
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(426)
 <223> n = A,T,C or G


```

<400> 459
cctatgatan cttctctaga tctcatactc caatcagcaa aaaatgagaa aatggtgaga      60
aatagaagat aatttcttat ttaagggcac cttctagaat ttgtgcttaa gattctgctt      120
tcttctcatg ggccagcact tgggcaactg gcaaaaatta ggtgtacagg gatctaggta      180
atactgttta tttagagcaat aatatattgt gctaacgttc aggcatacta ttactgagaa      240
ataagggaaa atgagtgtaa agtacaacta agagtctcgg cgacagggaa aaataccatc      300
agttaaatat ccatagtcct agagcattta tgtaaaactg caatntgaat cctgcaatac      360
atnttggtct tttccctcag tgataccatg tgaggggaagn ngctctgtca aggcggggccg      420
gataga                                           426

```

```

<210> 460
<211> 348
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(348)
<223> n = A,T,C or G

```

```

<400> 460
ccaaatttta aaatgttatt tttcatatca tttataacct tgtcacaatc cacttaaaga      60
agtttggtta tatttcaactg aaaattttct tccagagtag gtttttttct gtgggttggg      120
gggtaacttt actacaatta gtaagnttgg tgcagaattt catgcaaatt aggagtgcag      180
cagngtgata atttaaacat atntaaacaa aaacaaaaaa aatgaatgca caaacctgct      240
gctgcttaga tcaactgcagc ttctaggacc cggtttcttt tactgatnta aaancaaaac      300
aaaaaaaanta annaenttgt gectgaaatg aancttggtt ttttntna                    348

```

```

<210> 461
<211> 378
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(378)
<223> n = A,T,C or G

```

```

<400> 461
ccactaagac agaacggaat ctagtagaag tgcaccaatg cttcagtcct tctactcag      60
catggtgagc agtgggtcaat ctgtgccctg tggaatgatg ggcagataat tctggcatgt      120
gtaaataata ataaataatt cacttggtgc aggcagtatg tctatgaatt aaaacctagt      180
gtgtacacag tgctacatg tgttacagcc ccacagtagg aatctacacc aaaatattta      240
ttagaaggaa tttgggtccgt actacatcac gctttccgga gggtaaaaaa taaagtccat      300
ctatagacat ttcaccacag acccagagac tgagtctggc taaaacctgc aaaatgtcta      360
taacaaaagn ggatggct                                           378

```

```

<210> 462
<211> 197
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature

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<222> (1)...(197)
 <223> n = A,T,C or G

<400> 462
 gcgagggtcca cactattaaa agctgttggg taattgaagg tgatataaaa tgactgtcnt 60
 catttggagt gngcagcaca nttacttcat gttgtctang ccttctctctg cttctctctg 120
 aagttctcac acagatnngn agaaatcata cctantnttg gtnaatcact atggcagccg 180
 tngaagaatn taagaga 197

<210> 463
 <211> 279
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(279)
 <223> n = A,T,C or G

<400> 463
 cataagtgat gangaggnaa aatcantnaa taagcctaca acntagaata cattaaaact 60
 tgcacatata catgttcaca gcatgtatac aatgataatc cctacggttt aaccaagtta 120
 tggttccctt ctacagcaga cacaaaacca aggtgaacta ggtnnggcaga tgtanaggga 180
 ataccaaaaa aagggtaatn ngntcactga ttctgaagna tntgactgan catactgagc 240
 ttctgnactt tgggaatgca tnnaggnaac aatatcttg 279

<210> 464
 <211> 552
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(552)
 <223> n = A,T,C or G

<400> 464
 gatggggttga taggtgcagc aaaccaccct ggcgcatgtt taccaatgta acaaacctgc 60
 acatcctgca caggtactcc aaaactaaaa gtaaaaaaat ctaaaagaaa aaagaaaaag 120
 aattaaacctt aaaatcactt ccccatctgg acttgattta gatgaaaagc ttctggactt 180
 tgagctgatg ctatagtggg ttgaaaattt tggggtcctc agaaggggat gaggatatat 240
 tgcctgagag agcaacatga atcatngaga gccagagtat agagagnggt gggtagactg 300
 taggagagcc ctcaatgatc ccggctgtct tgtattcgcg ttgcacttac ttgtataata 360
 tggcagatgg gatgtgatgt cactttcaag attangttat aaatagacta tggcttcaat 420
 cagaggggtt tcttctctgt ctanctctct tttgggtagn ttcattctga gagaaagcca 480
 nacctengcc genaccacag ctaaggggagc anttccagen cactggcggc cngttactag 540
 tggatccgng ct 552

<210> 465
 <211> 444
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature

<222> (1)...(444)

<223> n = A,T,C or G

<400> 465

ccactcttgg	tagaaacctt	gaaactttca	ccttgctggg	cttttagcaaa	gtttcctttt	60
acagttctgt	ttatgagctt	cagctactga	taaagcactt	cctgaacttc	tctattatca	120
tagngaccct	ctgaataacc	tgagtgactg	gctcggcaat	tcgctttata	accattctta	180
ttcccaaagt	tgagcacat	aaacatttag	atgtcttttc	ctgtaaaata	ttctagacat	240
ttacccaaac	tctagttcaa	catatactca	acttgcactg	tatatctccc	tgcttttttg	300
agacagagaa	gaaattcagg	aggtgnccca	tctccagagt	ttctctgttg	gaaagcagcn	360
atcaagaanc	ctttaaaaaa	ttggtgtnaa	gctntgccnc	ctgcagaaat	gcntngcccc	420
acattattct	tctggggnaa	agna				444

<210> 466

<211> 381

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(381)

<223> n = A,T,C or G

<400> 466

cctactatgg	gtgttaattt	tttaactctct	ctacaagggt	ttttcctagt	gtccaaagag	60
ctgttccctct	ttggactaac	agtttaaattt	acaaggggat	ttagagggtt	ctgtgggcaa	120
atttaaagtt	gaactaagat	tctatcttgg	acaaccagct	atcaccaggc	tcggtagggt	180
tgctgcctct	acctataaat	cttcccacta	ttttgctaca	tagacgggtg	tgctctttta	240
gctgttctta	ggtagctcgt	ctggnttcgg	gggtcttagc	tttggtcttc	cttgcaaagt	300
tatttctagt	taattcatta	tgcanaggt	ataggggnta	gtccttgcta	tattatgctt	360
ggttataatt	tttcatcttt	c				381

<210> 467

<211> 95

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(95)

<223> n = A,T,C or G

<400> 467

cctatanatt	ntggnttgta	tactgggtcc	tgaaaaccct	cttggngctc	tgtttttaag	60
gagctgaanc	caanganccg	caataataat	acttt			95

<210> 468

<211> 224

<212> DNA

<213> Homo sapien

<400> 468

cagtgggtct	ctgatgcctt	gcctgcagca	gaaggaggga	gcagagatca	agaggaagga	60
aaaaatcata	tgtacttatt	tgaaggtaaa	gattattcta	aagagcccag	taaggaagac	120
agaaaatcat	ttgaacaact	ggtaaacctt	cagaaaaccc	ttttggagaa	agctagtcaa	180

gagggccgat cactccgaaa taaaggcagt gttctcatcc cagg

224

<210> 469

<211> 416

<212> DNA

<213> Homo sapien

<400> 469

ctgagttcta	gttcadaagc	tttateetta	acttcgtcat	gtactatgta	aattctagaa	60
tagaaaagg	aaaggtaaga	ttttggtaac	ctccaaacat	tgaagtagtt	cacagaccca	120
aagtcagtac	aaattagaat	gtccatccat	aataaaaagta	tctataaaat	tacacagaca	180
cattctacat	agtatttaac	attagagaag	acaaattaca	cagggactga	aataaaatga	240
aacatctact	ctcccgacaa	atggtgaata	tacctaatca	acccaagttc	agtttatttt	300
tgcacattgc	tttagagata	taacttggct	gggcacagtg	gtccacacct	gtaatcccaa	360
cactttggga	gaaccaaggcg	gatggatcac	ttgagggtcag	ttcgagacta	gcctgg	416

<210> 470

<211> 376

<212> DNA

<213> Homo sapien

<400> 470

caccttttaa	ctgtatcaca	aaqtctgttg	ctgtggttac	agcctttggt	tccagtgatg	60
ttttgtccat	gctttccccc	aacctttaac	aatgggttact	caaaagaatg	aaataatgag	120
tcattcatto	gggaatatgt	taaaatatcc	ctctttatca	ttacatttca	ctgcttagaa	180
actaggtctg	aattcaaggc	aacagttaag	tctgagaact	gttaaaaaaa	tctttgattt	240
tttttcattt	ttaagaaaaa	cctgcctatt	taattgttca	gacttgtaag	aggttcttca	300
attacatcct	ttttggttaa	tgtattattt	ctggaacaag	tagataaaat	tctacgcagt	360
aagcataata	aaaatc					376

<210> 471

<211> 357

<212> DNA

<213> Homo sapien

<400> 471

ggcttcgtat	aatggttctt	ttgtcacccc	tgatecacga	tttcgtatcc	cgtacaactc	60
tgacaaggga	acgaaatgct	tctgtgtatt	cacctagtgg	tctgtgaac	agaagaacaa	120
caactccacc	ggatagtggg	gtactgtttg	aagggttagg	catttcaaca	agacctagag	180
atgttgaaat	tcttcagttt	atgagacaga	ttgcagtaag	gaggccaact	acggcagatg	240
aaagatcttt	gcggaaaatt	caagaacaag	atattattaa	ttttagacga	actctttacc	300
gtgctgggtg	tcagattaga	aatattgaag	atgggtggccg	ctacagggat	atttcag	357

<210> 472

<211> 557

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(557)

<223> n = A,T,C or G

<400> 472

cngagatgac	atttacaatc	tcttgaaang	cagcagatgg	cactctgggtg	cttcctatga	60
------------	------------	------------	------------	-------------	------------	----

agcaacatgc	ttgaaatcaa	gggccaaaca	ttgttgtagg	aaagcaaaat	atacctctaa	120
cacctacgtt	taccaaaaaa	gctgacatct	caaactctga	gttggtgaga	ctcaaatttc	180
tcattcccaa	agaagcctat	tacggtagtg	tgntggatgc	tttttgtatc	tctgataggc	240
aggcactata	atgggggggaa	atacttctga	ataaaaaacat	tggctgtctt	gcaactgtgc	300
atataatgtc	tattcaaggg	ggcagtgtgc	ctagcatgat	cctgaaatgt	tgagataaaa	360
ggaagttagc	attaaagcac	tatttgtctt	atatgaaaag	agtgactcta	tcttccagta	420
aacaagantt	cctgcaatga	aaaagaaaatt	ttttccttca	ttatctataa	actatacaaa	480
ataaccttcc	tttttaacct	aagactcaaa	cattnatatt	tgatttttatt	ctatttgata	540
ccaattggta	tgtccag					557

<210> 473

<211> 264

<212> DNA

<213> Homo sapien

<400> 473

cctccatcaa	cagaaaggat	aaagaccctt	tcgggtctcc	tcattaattc	tgaactggaa	60
aagccccaga	aagtcgggaa	agacaaggaa	ggaacacctc	cacttacaaa	agaagataag	120
acagttgtca	gacaaagccc	tcgaaggatt	aagccagtta	ggattattcc	ttcttcaaaa	180
aggacagatg	caaccattgc	taagcaactc	ttacagaggg	caaaaaaggg	ggctcaaaag	240
aaaattgaaa	aagaagcagc	tcag				264

<210> 474

<211> 165

<212> DNA

<213> Homo sapien

<400> 474

aattcagctt	ccagaggccc	ttattagtc	ttgttgacag	aaacatagat	ttggcaactc	60
ctttacatca	tacttgga	tatcaagcat	tgggtgcacga	tgtactggat	ttccatttaa	120
acagggttaa	tttgggaaga	tcttcaggag	tggaaaactc	tcag		165

<210> 475

<211> 417

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(417)

<223> n = A,T,C or G

<400> 475

aagttctctt	cttgttttta	acacattcct	gataacttct	aaagatgacc	aaaataaaac	60
agaatatcta	cagagatcat	tttctgaatt	ttttgtacat	ccaaggataa	caacataaaa	120
aaaataaaac	tggacagcat	tccacatcca	agtgcacaga	accatttttg	caagattaaa	180
taatgtaaac	attgggaaca	gccaaatcag	cgaagaatgc	caacacctca	aaacacctgg	240
tgttgccgct	tcattaagtg	gttcaaaaac	cagatctata	attgcgcaat	attcacctga	300
tataaaaaga	aatggatatt	aatttttgaca	aatagctgca	actgagactt	ctttttattt	360
ctttatatgn	gnatatagtg	aattttttatt	attttttaaaa	ttttatttat	tttttta	417

<210> 476

<211> 321

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(321)
 <223> n = A,T,C or G

<400> 476
 catttaataa caaaaacaac ctgtacggaa aaccnaagg caaccacata gcatatgtaa 60
 aatgtgcaaa tacacttttaa aatgcangtt attctatagc anttgcaaga tagaatttca 120
 ctgtaattag ggaatctagc tcacctaac ttaatagnct tttgcatgtn tagacaatgc 180
 aattctacaa ggnacnactc agcgttgatg cttaaagtatg aaacacatcc tcagattatt 240
 catccgaaaa tattaaaata gntcatgtt ttattattct ttaatgagtc ntgagctcat 300
 ttctaaagct tcataaagca t 321

<210> 477
 <211> 546
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(546)
 <223> n = A,T,C or G

<400> 477
 gctgtgggta tattgtaaat gaagcatcta acatgtgcac aacttgcaac aaaaactcct 60
 tggactttta atctgtcttt ctacagttcc atgtgctgat tgatctgact gatcacacag 120
 gcacccttca ttctgttagt ctacaggaa gtgttgctga ggagactttg ggctgcacgg 180
 tacatgagtt tcttgcaatg acaaatgaac agaaaacagc attaaagtgg caattcctct 240
 tggaaagaag caaaatttat ttaaaattcg ttctatcaca cagagcaagg agtggattga 300
 aaattagtgt actctcgtgc aagcttgagc atcctactga ggcaagcaga aacttgctctg 360
 gacaaagaca tgtttaaaac ggtctatcat tttgaactct ggaaaagtat aagagtttta 420
 actcccttta aaatggaata ttaatttgaa aattatgggg aaaattgcat tttgtttaca 480
 tgtgggtgaa atgtttctag aaattggtat ggcggaagg gggctgggtg agtctgaagg 540
 acctcn 546

<210> 478
 <211> 100
 <212> DNA
 <213> Homo sapien

<400> 478
 aagaaaagtg gtaaaatcaa gtcttcttac aagagggagt gtataaacct tggttgtgat 60
 gttgactttg attttgctgg acctgcaatc catggttcag 100

<210> 479
 <211> 508
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(508)
 <223> n = A,T,C or G

<400> 479
 gnnttccaaa ttcttctaac ttttccaaaa gccttctgcc ttagtttttt tttaaattaca 60
 ccagtccttt tagtagcttt ttgatgtgat ttttaaccaa ctcccccttc tagcttcaag 120
 tattcttcta aattggctct ggtctacgta aacaccctca tcttctcaag ctttaccttc 180
 taacttctgc accaccagaa attaaattga tgggctttta aaataaattg gttaccaata 240
 atttctctcat ttttccagtg ctattttatc caatttttgg ctttatattt ttctatcttc 300
 tatacttctc caatacttgt cttagcttgt ttttcatttt ctatctgaaa ctcttgacaa 360
 tatcttctaa tttccctatc ttctctatcc ttttctctgc ctccccgtac ttctgcttcc 420
 agntttccac ttcaaacttc tatcttctcc aaattgttca tctaccact cccaataatc 480
 tttccatttt cgtgtagcac ctggncag 508

<210> 480
 <211> 81
 <212> DNA
 <213> Homo sapien

<400> 480
 ggtgcccttt tcttaacact cacaacaaaa ctaactaata ctaacatctc agacgctcag 60
 gaaatagata aggaaaatga c 81

<210> 481
 <211> 306
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(306)
 <223> n = A,T,C or G

<400> 481
 tgccttctgg ccgccgggca ggtaggggn acaagacgct acttccccta tcatagaaga 60
 gcttataacc ttctatgata acgcccctcat agtcattttc cttatctgct tcttagtctt 120
 gtatgccctt ttcttaacac tcacaacaaa actaactaat actaacatct cagacgctca 180
 gggaaatagaa accgtctgaa ctatctctgc cgccatcatc ctatgctctca tgcctctccc 240
 atccctaagc atcctttaca taacagacga ggtcaacgat ccttccccta ccatcaaate 300
 aattgg 306

<210> 482
 <211> 582
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(582)
 <223> n = A,T,C or G

<400> 482
 ggggggaaca gtcattatac attatttaga ctcatctctt cttccagtgc ctttatgatt 60
 atttcttacc ttaccattg atcttaaact gngcaggcta aaaagaggaa ccagaactcc 120
 cttaagcact tttaagacta tttaaaaaat aaagntttgt tggcattgaa gagtaagctg 180
 cttaagggac tgaatgaaaa gatagtacct tttgtggctg tatgaagaga gaaactgaat 240
 ttctatccaa gagaccttaa tntagcctat tagggaatta tcttccccaa aagtacaagt 300
 aattttgcac tgcaggagaa ggataagtag atttgattta catcacattt tatacacacc 360

tttcaagang	gagaaatctg	cttcataaat	agnaggaatc	tatgcttaaa	ctnaacattt	420
aatggtgacn	tcttacaaca	gccttgaaaa	nnattggaan	tongacntga	ngngggaaac	480
tggaanaaag	aatatctttc	tctttctgat	cctttnatcc	tcaaacttag	catggattca	540
cacgctgagg	aaangttngg	tnacnaccng	aacattttaga	ta		582

<210> 483

<211> 275

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(275)

<223> n = A,T,C or G

<400> 483

gcctcactaa	aataacagat	ttcagtatag	ccaagttcat	cagaaagacc	caaattggaat	60
gatttacaaa	atagaacact	ttaaaccagg	tcagtcctat	ctttttgtag	ctgaaggcta	120
tcagtcataa	cacaatttcg	cgtacacctc	tgctcattat	ggaattacac	ttaaaacgaa	180
tctcaagagg	gtgaccattg	ttgtttcaga	taccatccct	aaggagagtg	gttaacagga	240
agattgccag	ngttactgat	ggaaagaagc	gcttg			275

<210> 484

<211> 434

<212> DNA

<213> Homo sapien

<400> 484

catatttcca	caggccaatt	tctttctggt	tttctgctaa	gctatttcag	catttttagct	60
tttctctttt	gctttgttta	ctcatgattg	ccagatggct	acgttacctc	taagcatcag	120
atcctcacaa	attaatgggt	aatgttaagg	gagggatttt	actctcttgc	attaaaaaaaa	180
agcttttatt	agatataatt	tactgtaaca	ttgactcatt	taaagtatgc	tagtcaatag	240
accaaaactt	gaataaactc	ccattcacaa	ttgctacaaa	gggaataaaa	tagctgggaa	300
tatagctaac	aaggggaagt	aagggcctct	tcaaggagaa	ctacaaacca	ctgctcaaga	360
aataagagag	gatacaaaac	aatggaaaaa	cattccatgc	tcatgaatag	gaagaatcaa	420
tatcgtgaaa	atgg					434

<210> 485

<211> 291

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(291)

<223> n = A,T,C or G

<400> 485

ncaccactgc	agccctacat	acagttgaaa	aaaaattcca	ttctgttaac	atttgtttta	60
taagttttca	cgcaatacac	aaaaaacccc	tctgcacttc	ttgtaaagaa	caaaaaagat	120
acacaacagt	taagcgtaaa	gatacacaggc	aatagcattc	aaacatggat	gtgggtagag	180
aaaggagtag	ctggcatgag	tacctgctta	gtttgactga	atccttgatt	tttaatttgg	240
cttttcatgg	gccgctcaca	acaccaacgc	tgtgtgaggt	atggtagtca	g	291

<210> 486

<211> 274
 <212> DNA
 <213> Homo sapien

<400> 486
 ctgtaatat gtagttgctc cagaatgtca agggcagctt acggagatgt cactggagca 60
 gcacgctcag agacagtga ctagcatttg aatacacaag tccaagtcta ctgtgttgct 120
 aggggtgcag aacccgtttc ttgtatgag agaggtcaaa gggttgggtt cctgggagaa 180
 attagttttg cattaaagta ggagtagtgc atgttttctt ctgttatccc cctgattgtt 240
 ctgtaactag ttgctctcat ttaatttca ctgg 274

<210> 487
 <211> 184
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(184)
 <223> n = A,T,C or G

<400> 487
 tggcaccag attctcagct caccgtacca gcctctgatt gtccgactac ctgctgcttt 60
 ccctgatatt tatacatgat attcgnaaaa tgtaagaag ctattattca tacagacatc 120
 tagagaagga gngaagnttt taaaaaata aaaaaatact tatttcaagc ttcagctgtg 180
 ttct 184

<210> 488
 <211> 393
 <212> DNA
 <213> Homo sapien

<400> 488
 ctgcattttt attgcgatct gcagatgaac tggaaaatct catTTTTacaa cagaactggg 60
 acagacgacc accatattca ctgaggctta aatttgcagt ttccactaat gacattttga 120
 tttcccaaca gagatacttc tggctttact gcacagctct ttaagagaaa tacttccatt 180
 atgccacatt gtccctgatc cgtaagtgat gtgttaagggt gcttcaaagg aactctgacc 240
 tctgaagtac ttgagctact ttagtatgtc cagcctattg ctttttgtt tagtgtgtca 300
 ccataaatat caggggcata aaaggctatc tattcttaat tcaaggataa aacagaagaa 360
 gcttggtgta taaaacaata gtccaagatc cag 393

<210> 489
 <211> 607
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(607)
 <223> n = A,T,C or G

<400> 489
 gtgcttatgt acttaagggg aactactcta actgggtgaa gagtangatg aagcatccat 60
 gtccctacaa aggatatgaa ctcatccttt ttatggctg catagtattc catgggtgat 120
 atatgccaca tttcttaat ccagctctatc atcgatggat atttgggttg gttccaagtc 180

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tttgctattg tgaatagtgt cgcaatgaac atacatgtgc atgtgtcttt atagcagcat      240
gatttataat cctttgggta tatacccagn aatgggatag ctgggtcaaa tgggtatttct      300
agttctagat ccttgtggaa ttgccacact gtcttcacac atggttgaac tagtttacag      360
tcccaccaac agtgtaaaag tggtoctatt tctccacatc atctccagca cctgttggtt      420
cctgactttt taatgattgn cattccaact ggtgtgagat ggtatatcac cgtgggtttg      480
atttgcattt ccttgatggc cagtgatgat gaaactcttt taaatgggct ccttttnta      540
taaatggcct gcctttnta cttctataaa atttttcann tcttattatt attcctgggg      600
gnttaag                                           607

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<210> 490
<211> 179
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(179)
<223> n = A,T,C or G

```

```

<400> 490
cttctaggaa tactagtata tcgctcacac ctcatatcct cctactatg cctagaagga      60
ataatactat cactgntcat tatagctact cccataaccc tnaacaccca ctccctctta      120
gccaatattg ngcctattgc catactagtc tttgccgcct gcgaagcanc ggtaggacc      179

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```

<210> 491
<211> 399
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(399)
<223> n = A,T,C or G

```

```

<400> 491
cctctacctg taatcacatt aatttttcta aagacagggg nggtgttttg aagataaatg      60
tcattagtct atgataatag catcatagga caattagcca ttttagactt gaccatattt      120
tctcttttta gcatatagcc atcttgatat ttagngggga gactactcca atggagcaac      180
agtttcattt tacatgattg gatttagaaa ttacaaatt ttaaactcat aagaattcta      240
aataatttga aaatggaaac atttgaccca cagtctagca gcataaatatc atttataaaa      300
tacttcattg ttgatcttag gtcattgatt taaaacagaa tttggtgact atgggcaggt      360
ggaggggggc ngtgaggaag gtataaaaga gaaatcttt                                           399

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```

<210> 492
<211> 482
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(482)
<223> n = A,T,C or G

```

```

<400> 492
ctccacctta ctaccagaca gccttagcca aaccatttnc ccaaataaag tataggcgat      60

```

```

agaaattgaa acctggcgca atagatatag taccgcaagg gaaagatgaa aaattataac      120
caagcataat atagcaagga ctaaccccta taccttctgc ataatgaatt aactagaaat      180
aactttgcaa ggggagccaa agctaagacc cccgaaacca gacgagctac ctaagaacag      240
ctaaaagagc acaccgtct atgtagcaaa atagtgggaa gatttatagg tagaggcgac      300
aaacctaccg agcctggtga tagctggttg tccaagatag aatcttagtt caactttaaa      360
tttgcacaca gaacctctta aatccctctg taaatttaac tgttagtcca aagaggaaca      420
gctctttgga cactaggaaa aaaccttgta gagagagtaa aaaatttaac acccatagta      480
gg

```

```

<210> 493
<211> 207
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(207)
<223> n = A,T,C or G

```

```

<400> 493
cataaatatt atactagcat ttaccatctc acttngngga atgctagtat atcgctcaca      60
cctcatatcc tccctactat gcctagaagg aataatacta tcaactgttca ttatagctac      120
tctcataacc ctcaacacce actccctctt agccaatatt gtgcctattg ccatactagt      180
ctttgcgcgc tgcgaagcag cggtagg

```

```

<210> 494
<211> 283
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(283)
<223> n = A,T,C or G

```

```

<400> 494
ccaattgatt tgatggtaag ggaggggatcg ttgacctngt ctggttatgta aaggatgcgt      60
agggatggga gggcgatgag gactaggatg atggcgggca ggatagttca gacggtttct      120
atttctgag cgtctgagat gttagtatta gttagttttg ttgtgagtgt taggaaaagg      180
gcatacagga ctaggaagca gataaggaaa atgactatga gggcgtgac atgaaaggtg      240
ataagctctt ctatgatagg ggaagtagcg tctttagtag cta

```

```

<210> 495
<211> 590
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(590)
<223> n = A,T,C or G

```

```

<400> 495
tatgtatata attttcttag ttactagcat agagaaatta ctgatttaaa aaaacatttc      60
aaattctagc atgtttagg attctattgc ctttctaaa aagtacatct tgcttatccg      120

```

```

atttctaaca aaactatttta atttgaagaa gggagaatga atttggataa aaagcaaaaa 180
tttaaaggta ctcaaatttta ggcaaaccat taaagcaatc ttagttttaca gtttaattggg 240
tagaatggtc aacacttttct tcaggtttagt tcatggagtg gatatgcatt gatagaacaa 300
cttagagatg cttttacagt tgagaaaagct cattatatatt gttatcttta agaatacagct 360
tattttatttc atatgtttgt tctttaagaa gaccaaagag ccttgcaaat gaatgttgat 420
ttgttttttt gtttgtttta tttttttgta ggtatagat ctcaactttgt tatgttcccc 480
aggctgggtct caaactctca acttgaagtg atctgcccac ctacagctcc caaagtgggtg 540
ggattacagg catgagccac cgcacctgga cctgcccggg cggncgctcg 590

```

<210> 496
 <211> 307
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(307)
 <223> n = A,T,C or G

```

<400> 496
ggagattagt atagagagagn anaenttttt tcnggatatt tggtcacatg gataagtggtc 60
gctggcttgc catgattgtg aggggtagga gccaggtagt tagtattagg aggggggnng 120
ttaggggggtc tgaggagaag gttgggggaac agctnaatag gttgttngnt gatttggnnta 180
aaaaacarta gggggatgat nctaataatt antgctgttg gtggttgtgn tgattcaaata 240
tatngtcttt ttgggagann catgtcangt ggtagtaaata ataattgttg ggaccattan 300
ttcttan 307

```

<210> 497
 <211> 216
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(216)
 <223> n = A,T,C or G

```

<400> 497
cattttcttc ttgggtttctt cagttaagtc aaanngncac gttectcttt ccccatatat 60
tcatatattt ttgctcggtta gtgtatttct tgagctgttt tcatgttgtt tatttctgt 120
ctgngaaatg gtgttttttt ttgttgttgn tggttttttt tttttttttt aaactnggna 180
ccnnaanttt gaaaaaatgn ttntttttcc ctncaca 216

```

<210> 498
 <211> 375
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(375)
 <223> n = A,T,C or G

```

<400> 498
gaatttctctg gcaccttttc tcgctagaga agattnnngtg tgactggggtt gcctataagc 60

```

catatagata	caaactttta	tctctaatac	caagtcttag	agggatatat	taatagatct	120
aataaattta	ttcttagact	tattgtttca	tgggntagtg	agtctttgct	actggagaca	180
atacagactt	gtcagttttt	ttaaaaaaa	aaaatttgcc	aagctancac	attaaaaana	240
tntcctaagg	ctntcatttt	atgaggatga	ttataaacnt	ttntgngata	aatatcacca	300
taataaactg	ttaggtacaa	ctgenggeen	cccttanagn	gaattcctnc	agttanaaat	360
ttattttttt	gccaa					375

<210> 499
 <211> 215
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(215)
 <223> n = A,T,C or G

<400> 499						
ccacnaaagc	agaagcttaa	agcatagtag	taaagaggnn	aaaaagaagg	acgaaaataa	60
atcagatgac	aaggatggta	aagaagttga	cagtagtcat	gaaaaggcca	gaggtaatag	120
ttcactcatg	gaaaagaaat	taagtagaag	gttgtgcgaa	aatcggagag	gaagcttgtc	180
acaaaaaaaa	aaaaaaaaaa	aaaaaaaaat	gtttt			215

<210> 500
 <211> 489
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(489)
 <223> n = A,T,C or G

<400> 500						
ccactacgat	aagcaggtag	ctgggttttg	tagtgagntt	gttccttaag	ttacaggaac	60
tctccttata	atagacactt	cattttccta	gtccatccct	catgaaaaat	gactgaccac	120
tgctgggcga	caggagggat	gatgaccaac	taattcccaa	accccagtct	catttggtacc	180
agccttgggg	aaccacctac	acttgagcca	caattggttt	tgaagtgcac	ttacaaggnt	240
tgtctacttt	cagttcttta	ctttttacat	getgacacat	acatacactg	cctaaataga	300
tctctttcag	aaacaatcct	cagataacgc	atagcaaaat	ggagatggag	acatgatttc	360
tcatgcaaca	gcttctctaa	ttatacctta	gaaatgttct	cctttttatc	atcaaactctg	420
ctcaagaagg	gctttttata	gtagaataat	atcagtggat	gaaaacagct	taacatttta	480
ccatgctta						489

<210> 501
 <211> 286
 <212> DNA
 <213> Homo sapien

<400> 501						
aaaaacactc	aaacacagcc	ttggaggggag	gagtcagttt	taaaagactc	ttataaaagt	60
aatatactgc	tagctctgaa	gaatcggagg	ctaaaatcat	ctcttcaagt	ccccagggaa	120
tcccaaagaa	ctccagggga	aggtgggatg	ggccagagag	ctctggaagc	ttccaggtct	180
gttgcaagcc	tcacctggta	cacagtaggc	tcttccaggt	ctgtcaggaa	cccaggagcc	240
tcccctagca	cacagtaggc	tcacaaaaag	ggagcactgc	tgctgg		286

<210> 502
 <211> 168
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(168)
 <223> n = A,T,C or G

<400> 502
 cctatgattg tgggggcaat gaatgaagcg aacagagntt cgttcatttt ggttctcaga 60
 gtttggttata atttttttatt tttatgggct ttgggtgaggg aggtaagtgg tagtttgtgt 120
 ttaatatattt tagttgggtg atgaggaata gtgtaaggag tatggggg 168

<210> 503
 <211> 173
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(173)
 <223> n = A,T,C or G

<400> 503
 cctttataat aaattaggca aaagggttcag tgcnnnggcta tantggacaa catgaaactc 60
 cataaaaaatg actggatagg gggactgctt gagactttttc ttttgggcat tactaacaga 120
 attcaaagaa attccaacca cgcttatttt tccaaattct actgaaatga gag 173

<210> 504
 <211> 310
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(310)
 <223> n = A,T,C or G

<400> 504
 tagtatttcta tttaaaaatt aagttttggg gtctgtaaaa tatacaggac aatgactttt 60
 ttaaaatgta agttaatacc tctctctcac ttgtcttaat tgaacttagg tgtttattct 120
 taaaggngga ccttgatgaa aatgttgaga tgggaagtgt tattaggcaa aacttgttat 180
 agatttctca tataactctt aattgacctt tagaatttta acaaccgcgc ctggcccaat 240
 agactgtttt ttagagtant tttaggtctt cancaaaatt gaggggaaaa tacagggtgt 300
 tcccatataa 310

<210> 505
 <211> 530
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(530)
 <223> n = A,T,C or G

<400> 505
 cctcagggaa cttacaatta tggcaaaaagg ggaaggggaa gcaagcacct tcttcacaag 60
 gcatcaggag agagagagaa agagagtagg ggaaactacc ccttttaaac catcatatcc 120
 tgtgagaact ccctcagtat tagaagagca tgaggggaaac cgctccata atccaatcac 180
 ctcccaccag gaccatccct caatacatgg ggggttacaat tcaagatgag gttcgggtgg 240
 ggatacagat ttaaaccata tcagaatggg taatgatatt gttgtatttt accaactata 300
 atcttcttag tgttatagta caataatgta aaaaattgag taaatttgtt ttctatatta 360
 ttctgttttt ggaaaacatg tatatagtca gggctgtttg tctcaagaaa atatggtaaa 420
 ctctgctgtt ttgggtcactg gtgcctagaa tttggggatg tacattgggt ttgattcaca 480
 tgcacatttc ctctagttc acagtaacta tttctaacta tttcccnata 530

<210> 506
 <211> 352
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(352)
 <223> n = A,T,C or G

<400> 506
 cttgaacgct ttcttaattg gtggtgtgct ttaggcggta ctatgggtgn taaatttttt 60
 actctctcta caaggttttt tctagtgtc caaagagctg ttctcttttg gactaacagt 120
 taaatttaca aggggattta gagggttctg tgggcaaatt taaagttgaa ctaanattct 180
 atcttgaca accagctatc accaggtcgt gtaggtttgt cgctctacc tataaatctt 240
 cccactattt tgctacatag acgggtgtgc tcttttagct gttcttaggt agctcgtctg 300
 gtttcggggg tcttagcttt ggctctcctt gcaaanntat ttctagttaa tt 352

<210> 507
 <211> 370
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(370)
 <223> n = A,T,C or G

<400> 507
 cctaactaga tcttatcaga atagggggga agggngtcgg ttcatectta ttgagtgtta 60
 atgacctgt aagatgtaat ttcttttatt tcattctgtt acctagaaaa tctatcacag 120
 ccttgtagta ttgattgtct aatctataaa gagctcagtt tacagcatga ctgttagtaa 180
 cagggnattt ttaatgagtg actcttcaac acctcagagt ttcactaaat tccaacccat 240
 cagcccagta gtctaacatt aagggtctta ggaaatgaga acttatcacc tttccttacc 300
 atgaaaagggt aacctccagg taacccaaaa tagaacttcc tctgtgttcg ttttttatag 360
 aaattactgg

<210> 508
 <211> 129
 <212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(129)

<223> n = A,T,C or G

<400> 508

ctgttataaag aacaaactta gcaatatata acagttnggt aacaggattt ttgactattc	60
actttgggag ttatttttaa aaatccactt ttttactgag tcttactaca taccaggcac	120
tgtacttgg	129

<210> 509

<211> 422

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(422)

<223> n = A,T,C or G

<400> 509

ntgggaagtc gtgacatcca tgggaaccca ggcctgtgat gctgggtgttt gngttctccg	60
cgagaagtga ccattgttgg agcaccatcc agagctagtg accantncag tggacagtta	120
gtgggagaat caaaaatcct ttccagaatg tctgtttctc actacntgca ccgggngatt	180
acaggcacca gtgcagngat gattgtactt atttgacaca tactccccgt cntcctggnt	240
nttgttctctg anaanggtgg gtaaatattc caggaaaaan aatgcacatt gaatggatgt	300
gagagaccac attgcctctc cactgtcttt ggggagcact ttcctgtcat ttctaactta	360
ccacntgctt ggtgtactat atgtatgttg tgcctcatat gttgcaaaga actaangtga	420
gt	422

<210> 510

<211> 238

<212> DNA

<213> Homo sapien

<400> 510

ccacctatga attggtggtt tacctactca atggatagca gcacgaggac tgctgtactg	60
cacaaaaaga agacaaaaag attacagtgg accatgggat acagaagcca gcatggcaga	120
cagaagaaaa atagtttggg aacatgtaac tatectaagt ggaagttttg ttgttaggaat	180
tatagtaalc acaccacatt acttggcctt tcggtaatgt gaaaaaaaaa aaaaatcc	238

<210> 511

<211> 254

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(254)

<223> n = A,T,C or G

<400> 511

ccnattgatt tgatggtaag ggagggatcg ttgnnggctcg tctgttatgt aaaggatgcg	60
--	----

tacgggatggg agggcgatga ggactaggat gatggcgggc aggatagttc agacgggtttc	120
tatttctga gcgtctgaga tgtagtatt agttagtttt gttgtaagng ttaggaaaag	180
ggcatacagg actaggaagc acgataagga aaatgactat gagggcgnga tcatgaaagg	240
tgataagctc ttct	254

<210> 512
 <211> 269
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(269)
 <223> n = A,T,C or G

<400> 512	
cctacctgta aactacagta ctttatatat ctatgggntt aataaaaaana aaatccacaa	60
atcttaaaaa ggaactttta atgcagggtt atattgaatt ggnaaactgc aacacaaact	120
ggcgcaacat aggtaaatga ataccaatct cactctatgt gatgcaagca tgctactttc	180
ccactaattt aaattacttt caaccactat gagccagaat gcatgcctga accttaaact	240
gcactttaaa aagtaacatc ttggcctaa	269

<210> 513
 <211> 266
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(266)
 <223> n = A,T,C or G

<400> 513	
ggaggggggt tgtagggggg tcggaggaga aggntgggga acagctaaat aggttggtgt	60
tgatttggtt aaaaaatant agggggatga tgctaataat taggctgtgg gtggttggt	120
tgattcaaat tatgtgnttt ttggagagnc atgncantgg tagtaatata attgttgaga	180
cgattagttt tagcattgga gtaggttttag gttatgnacc gtactctagg ccatatgtgt	240
tgganattga nactagtagg gctagg	266

<210> 514
 <211> 271
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(271)
 <223> n = A,T,C or G

<400> 514	
acatgcaana aatcgagaat cttaaaaaac annacgaanc tgccctggaa nncttactgg	60
nntangatat ttatnttgcg gctgagatac ttgaacaact tcggatcnga antagacaan	120
aanggnant tntatactgc nncagaggtt acacagntca ttgtattaga gangaacana	180
tgggtctggt gtccacacat tggggggaan atgggcgtnn acangagagg nnganaaacn	240
anganagcct ncctgggttng cataanaaaa a	271

<210> 515
 <211> 328
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(328)
 <223> n = A,T,C or G

<400> 515
 ccaatgaggg gcaaagtgag cgncnagaag angttttgac tgaaataaat caaacacaaa 60
 aatntaagtt cacagtgaca gtttaaacaa aatccaaaca aactaacaac anaaacaccc 120
 cttgntttgc ctctagtga aggtgggana acacaanctc gtccataaaaa ttgactagta 180
 aaggggaaaa cccggtcatt tncctactct tccangaaa tatctaattgc aagaaagaac 240
 ttctnctcat tatacngaag gaatttngaa aaatgatgta tttttggaac acctaantga 300
 aatactggaa cctgggcaag ttcaccac 328

<210> 516
 <211> 220
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(220)
 <223> n = A,T,C or G

<400> 516
 nccnagttg aaggacccca tgtacatata ggccagggga gcagtactag gntaactaga 60
 aggatctcat ccccatatgt gggctcattt caagtctatg gatgactacc ttcattgntg 120
 tgtgcgagat ggtttcacc cttgaaaata tgggcacttc ancataanat agcnaaatct 180
 ttataatgat caatncatcc tacctccttt tacatgcatg 220

<210> 517
 <211> 296
 <212> DNA
 <213> Homo sapien

<400> 517
 tgcgatttct tctttgttgt ttgctttggg ctgtgttcaa tccagagagc ttaaattgtc 60
 attatttttg gaagaaaacc tgtatttttg ttagtttaca atattatgaa atttcacttc 120
 aggagaaact gctgggcttc ctgtggcttt gttttcttag tttcttttct cgtgccgtgt 180
 attttttaat tgatttttct tcttttactt gaaaagaaaag tgttttatct tcaaattctgg 240
 tccatattta cattctagtt cagagccaag ccttaaactg tacagaattt ccactg 296

<210> 518
 <211> 299
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(299)

<223> n = A,T,C or G

<400> 518

gaagatagaa	aaatataaag	ccaaaaattg	gataanatag	cactgaaaaa	atgaggaaat	60
tattggtaac	caatttattt	taaaagcccg	tcaatttaat	ttctggtggt	gcagaagtta	120
gaaggtaaag	cttgagaaga	tgagggtgtt	tacgtagacc	agaaccaatt	tagaagaata	180
cttgaagcta	gaaggggaag	ttggttaaaa	atcacatcaa	aaagctacta	aaaggactgg	240
tgtaatttaa	aaaaaactaa	ggcagaaggc	ttttggaaga	gttagaagaa	tttgggaagg	299

<210> 519

<211> 464

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(464)

<223> n = A,T,C or G

<400> 519

gctgcacatc	ggaggaaaaa	tcggtaaaagc	agaatgaggt	tgatatgttg	aatgtatttg	60
attttgaaaa	ggctgggaat	tcagaaccaa	atgaattaaa	aaatgaaagt	gaagtaacaa	120
ttcagcagga	acgtcaacaa	taccaaaaagg	ctttggatat	gttattgtcg	gcaccaaagg	180
atgagaacga	gatattccct	tcaccaactg	aattttttcat	gcctatttat	aaatcaaagc	240
attcagaagg	ggttataatt	caacaggtga	atgatgaaac	aaatcttgaa	acttcaactt	300
tggatgaaaa	tcattccagg	atttcataca	gtttaacaga	tcggygaaact	tctgtgaatg	360
tcattgaagg	tgatagtgc	cctgaaaagg	ttgagatttc	aaatggatta	tgtggtctta	420
acacatcacc	ctcccaatct	gttcagttct	ccagngtcaa	aggc		464

<210> 520

<211> 221

<212> DNA

<213> Homo sapien

<400> 520

ctgatattcta	cttattttaac	acaagtctct	aatacaatac	aattttatta	attttattec	60
acatgcccc	cattagatct	ctagactcat	tcatectaca	tacctacttt	gtatcctttg	120
acctacatct	ccctacttcc	tcctccagtc	cccaccccc	accactgggt	gctaaccact	180
gtttcattcc	cttttttcatt	ctacatatgt	gagatcatgc	t		221

<210> 521

<211> 312

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(312)

<223> n = A,T,C or G

<400> 521

ctgatagctt	tctcttcgcc	tagattaata	tcttctnnct	tcccattcac	agccccacc	60
gacatcaaag	ctttgctgtt	ttatctgtca	aaaatgtctt	cacacttttc	attcttaaat	120
aaaagtgtcg	agtaaggaca	ttttcacaa	aaatttttat	ttacaaaaac	ttacaatgat	180
ttgaatccaa	aacaactttc	attatttaac	tgtaaagtaa	atatatat	tattaggngt	240

gtcttagttc attttgtgct gctttaacag tgtatccttg tgatagttgt ggggtggggg 300
 aggggggaag ga 312

<210> 522

<211> 336

<212> DNA

<213> Homo sapien

<400> 522

ccttctttcc ccaactcaatt cttcctgccc tgttattaat taagatatct tcagcttgta 60
 gtcagaccca atcagaatca cagaaaaatc ctgcctaagg caaagaaata taagacaaga 120
 ctatgatata aatgaatgtg ggtaagtaa tagatttcca gctaaattgg tctaaaaaag 180
 aatattaagt gtggacagac ctatttcaaa ggagcttaat tgatctcact tgttttagtt 240
 ctgatccagg gagatcacc ctctaattat ttctgaactt ggtaataaaa agtttataag 300
 atttttatga agcagccact gtatgatatt ttttaag 336

<210> 523

<211> 172

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(172)

<223> n = A,T,C or G

<400> 523

ngaenggnnc ntggctatgt ntatagatag ggctttaacc actatctgng aagcangagn 60
 gacannattc ttgctctcac atnccacngg anacgtatct ctcttctctt acnagcgaag 120
 aaccatctnt ttctaaagcc cccattctat tgccttgct tttctctggt tt 172

<210> 524

<211> 471

<212> DNA

<213> Homo sapien

<400> 524

ccagacctgc agaaaaaactt agcacagctc aatctgctgt ttgatggct acaggggtta 60
 tttggtaag atactcactt gtaactattc caaaaaattg gagtctgttt gctgttaatt 120
 tctttgtggg ggcagcagga gcctctcagc tttttcgtat ttggagatat aaccaagaac 180
 taaaagctaa agcacacaaa taaaagagtt cctgatcacc tgaacaatct agatgtggac 240
 aaaaccattg ggacctagtt tattatttgg ttattgataa agcaaaagcta actgtgtgtt 300
 tagaaggcac tgtaactggt agctagttct tgattcaata agaaaaatgc agcaaaacttt 360
 taataacagt ctctctacat gacttaagga acttatctat ggatattagt aacatttttc 420
 taccatttgt ccgtaataaaa ccatacttgc tcaaaaaaaaa aaaaaacctt c 471

<210> 525

<211> 332

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(332)

<223> n = A,T,C or G

```

<400> 525
ccccnctgta ttccagcctg ggtgacccca tctcanggaa gaaaagttac cagatgtcgn      60
gggtaaaggt tggctttcaa gtggcctcat aagttgtctt gcatttaaat tcagggaatt      120
cattggacca ataggttaca ttttcgttcc tttttgtttt tggttcatct gttaagcagt      180
ggggggcctaa ttactgctcc tttgtaaaaa cacattttcc caaagaacac tgaattaccg      240
ttcaaactgg ttgttgatgg gtaataaggg ctgtttttgc tgccccaaaa gggcttaaca      300
atttaggcgg atagtttact taaaaaaaaa aa                                     332

```

```

<210> 526
<211> 440
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(440)
<223> n = A,T,C or G

```

```

<400> 526
ccaggttacc tcccctaaca gatgtggtgt tctganggggt tggttaagtg cccgaggaaa      60
ataggcctta actgttaaca tctacagaga agaaagcatg gtcacactgg caaggagtaa      120
gaagggattg ggtaaaagaa aatgggagag aaaagggaaa aaagttttgg caagacaatt      180
gttccttgct aagaagctgc agggtgaaag ctttcctttc ttctattttt gtttttaatt      240
nctgtctctc tgatcagngg aaaagtgaag atttctagta tctagcacta acgtatgacc      300
caactttgag ggatcacaag ctagaacaag ttgaggattt aaaatcctgg ataattatat      360
acttaaagtt catgagcata aagctcactt gaccatgcag aaatgctggg aagcagggtg      420
catggcatgg gaatacatct                                         440

```

```

<210> 527
<211> 124
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(124)
<223> n = A,T,C or G

```

```

<400> 527
tttccatatg tctgttgggt gcataaatgn cttctttctga gaagtgtctg ttcttatcct      60
ttgccccctt ttgaggact taaatgtag acctaaagacc ataaaaaccc tagaagaaaa      120
ccta                                                         124

```

```

<210> 528
<211> 162
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(162)
<223> n = A,T,C or G

```

```

<400> 528

```

```

ctgcgggaga aatatgggga caagatgttg cgcangcaga aaggtgaccc acaagtctat    60
gaagaacttt tcagttactc ctgccccaaag ttctgtgcgc ctgtagtgcc caactatgat    120
aatgtgcacc ccaactacca caaagagccc ttctgcagc ag                      162

```

<210> 529

<211> 409

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(409)

<223> n = A,T,C or G

<400> 529

```

cctttaaaat atagcttata aaatgtatac tatnngccag gagagctcac atttttctgc    60
agttttccag tggacctgcc tatggaatac tgtaaagaaa aatctgcaaa aatattccta    120
gcaattgaat cagtgccttt aaataaaaga agtggagagg ggcttggtta aattattctg    180
acaagttttc ttgctagtgg ttgccaaaat taaggatatt tgaagtgtcc taccaccaa    240
atttggcttt aagaaaaagc tatattctgn gtctataggg tgaagccac actatctgtg    300
ctgcattctc aatgatacaa tacctatctg gaaactttcc tgttttgcca atgggtgcac    360
aatctaaaaa cattttatca caaaaggtac ttgaatttaa atttctttt            409

```

<210> 530

<211> 325

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(325)

<223> n = A,T,C or G

<400> 530

```

ccgccagtgt gatgatata tgcagaattc gccctttcna gatttgngcc cgggcaggtc    60
catggctagg attatagata gttgggtggt tggggnaaat gagtgaggca ggagtcagag    120
gaggttagtt tgggcaataa aaatgattaa ggatactagt ataagagatc aggttcgtcc    180
tttagtgttg tgtatggcta tcatttgttt tgaggttagt ttgattagtc attgttggtt    240
ggtaattagt cggntgttga tganatattt ggagggtggg atcaatagag ggggaaatag    300
aatgatcagt actgcggcgg gtagg                                325

```

<210> 531

<211> 173

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(173)

<223> n = A,T,C or G

<400> 531

```

ccaattgatt tgatggtaag ggagggatcg ttgaccnctg ctgttatgta aaggatgcgt    60
agggatggga gggcgatgag gactaggatg atggcgggca ggatagttca gacggtttct    120
atttctgag cgtctgagat gttagtatta gttagttttg ttgtgagtgt tag            173

```

<210> 532
 <211> 395
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(395)
 <223> n = A,T,C or G

<400> 532
 caggtcctac tatgggtggt aaatttttta ctctctctac ngggtttttt cctagtgtcc 60
 aaagagctgt tccctcttgg actaacagtt aaattttaca ggggatttag agggttctgt 120
 gggcaaattt aaagttgaac taagattcta tcttggacaa ccagctatca ccaggctcgg 180
 taggtttgtc gcctctacct ataaatcttc ccactatttt gctacataga cgggtgtgct 240
 ctttttagctg ttcttaggta gctcgtctgg ttctgggggt cttagctttg gctctccttg 300
 caaagttatt tctagttaat tcattatgca naaggtagat gggntagtcc ttgctatatt 360
 atgcttggtt ataatttttc atctttccct tgcgg 395

<210> 533
 <211> 290
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(290)
 <223> n = A,T,C or G

<400> 533
 ctgaaccatt atgggataaa ctggtgcaaa ttctttgctt tctctacttc tcaactgattg 60
 aacataagct tccagggctc cctgaaaaac caaaatgaaa acaatgtcaa aatattagat 120
 aaatcacata aaacagttta ggggatacca atatataaaa attattaggt aagctcattt 180
 ctggaactgt taatgctcgg ttccacaatc caagnngacc aacagccttc actcagntac 240
 tggngagtgt actatggtta ctacngntac tacctttagt gtnaaaaact 290

<210> 534
 <211> 334
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(334)
 <223> n = A,T,C or G

<400> 534
 ccgccagtgt gatggatatt tgcagaattc gcccttagcg agnnagccgg gcagggtccat 60
 ggctaggttt atagatagtt ggggtggttg tggggnatga gtgaggcagg agtccgagga 120
 gggtantttg tggcaataaa aatgattaag gatactagta taagagatca ggttcgtcct 180
 ttagtggtgc gtatggctat ctttggtttt gagggtagnt tgattagnca ttgttgggng 240
 gtaattantc ggctgttgat ganatatttg gaggtgggga tcaatanagg gggaaatana 300
 atgatcagtn ctgcggcngg tnnagacctn gcc 334

<210> 535
 <211> 557
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(557)
 <223> n = A,T,C or G

<400> 535
 nccataagct tcagtgcgca aaagggtcaag gccagtgtta atttggttatt tcttaaataa 60
 ctttcccttt cattttttaa ttataaattt aacttctaac atgttttatg gttaaaattg 120
 tacttttttc ctttagcgac attcaaatgc atcacaatca ctttgtagaa ttgttcgcct 180
 gagcagagac cagatgttac aaattcagaa cagtacagag cccgaccccc tgcctgccac 240
 tctagaaaag tatgtgtaaa actctgttct tgttcttctt tcatattgat gctgttccat 300
 gtgttaccat tgtgagtggg tggtaagtgt tcttatgtg ggaatcatgt gccttgaaaa 360
 taaccttggg tgggtgagaa ggtagggaaa cctgcttctt ttatctcaag taaaagttt 420
 ggcagggtaa agaagataaa tgacatttat atctagactt ttgagtttc caattatttg 480
 gtaaaaatgg gaaattctgt agaagccctt ccttaaaaat gggggaagtc catttnanaa 540
 aattaactgg taggtca 557

<210> 536
 <211> 372
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(372)
 <223> n = A,T,C or G

<400> 536
 gttccaaact tcatttctga aactgttcta gagcacngtg tctttctcgt agttcataac 60
 ttaccccttc agtctagaat tagaattaca ttatctgttt tactacttta ctagactgta 120
 agtccctaga agataaggac tagggagttc atctctgtat tccaccagaa ggtacagtga 180
 ctcatatcta gagtcttttag atgaaactta ctgagttgaa taacttaata tatttctgtt 240
 ttcattccca agggaggcca tgtctggaga tagaccttga atttaataaa ttttaggcac 300
 tataccattt cagtggagaa aattgttggg aaatttgggg ggatggatat ataaggggga 360
 ggaagtcact gg 372

<210> 537
 <211> 284
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(284)
 <223> n = A,T,C or G

<400> 537
 ccttctgatg caaacagaaa ggaaatgttg tttggangcc ttgctagacc tggacatcct 60
 atgggaaaaat ttttttgggg aaatgctgag acgctcaagc atgagccaag aaagaataat 120
 attgatacac atgctagatt gagagaattc tggatgcggt actactcttc tcattacatg 180

acttttagtgg ttcaatccaa agaaacactg gatactttgg aaaagtgggt gactgaaatc 240
 ttctctcaga taccaaacaa tgggttaccc agaccaaact ttgg 284

<210> 538
 <211> 293
 <212> DNA
 <213> Homo sapien

<400> 538
 gtacatagta ggtgtatata tttatgggct atataagatg ttttgataga ggcattgta 60
 gtgaaacaag cacatcaaca agaattgggt atccatcccc taaaacattt gtcctttggg 120
 ctacatgtca tttcctaattg taaagaaaat ggacagacag aaccaacatt gatttgactg 180
 ggtgaaaaag tccatttgag ttggggagcag gggttgtgtt cctggatttg ggttgtttag 240
 acagtgtaaa aagggttcac aggggaacat tcttttctga taaaggaaag cag 293

<210> 539
 <211> 468
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(468)
 <223> n = A,T,C or G

<400> 539
 tttcnataaa ctttattttt agagcagttt taagnnggta gcaaaattga ttagaaggna 60
 cagagatgtc ccatacacct cctactccca cacatgcaca gccttcccca ttatcaatag 120
 cccccaaacag agggatacat ttgttaacaa ctgacgaacc tacatatcat tatcacccaa 180
 agtccacagt ttatattatt ccttctggag aattttcaaa tacagaaatt cctctaccag 240
 gaataaacta ncaattttct ctgggttttc tataaattta attattattt cagaaattag 300
 cctatcttta caggagaaaa tgttataaac catgaaaaga ctatcaaata cacaaggaag 360
 tgaatgntat ataaaaaatg taccatctcc taaacaacta cctgcattcc cttcttgttg 420
 gtaagttata atttgnnata gttctgatca tctgtttaat taatttgc 468

<210> 540
 <211> 397
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(397)
 <223> n = A,T,C or G

<400> 540
 ctgttttatt aattccccca ttgacagcac acttntctct tccaacattc atcagtcaga 60
 tcagagtcca cggtcttttc aaaatttaga taaactggct tacattttgt aatgatgtcc 120
 ccagacaaca cccactcca acccattctg ttgtttacta ttagtttaca acatgcatgt 180
 gcctttactt tcattttcat agtattttaa aatggaaggg cactcccaaa tttactttaa 240
 cccctttaat aatctctctc ctctgctct ctctggctcc ccagacaact gttgattttac 300
 tttcctttat gatggattag ttgcatctt ctagaatttt atatgactga catataaagn 360
 ttttatgttt ctcctcttg ggtttcttca tgtggca 397

<210> 541

<211> 248
 <212> DNA
 <213> Homo sapien

<400> 541

cctagatagg	ggattgtcgc	gtgtgtgata	ctagggtaga	atccgagtat	gttggagaaa	60
taaaatgtgc	atagtggggg	ttttatttta	agtttgttgg	ttaggtagtt	gaggtctagg	120
gctgttagaa	gtcctaggaa	agtgcacagc	agggctgtga	gttttaggtg	gagggggatt	180
gttgtttgga	agggggatgc	gggggaaatg	ttgttagcaa	tgagaaatcc	tgcgaatagg	240
cttcgggc						248

<210> 542
 <211> 366
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(366)
 <223> n = A,T,C or G

<400> 542

aatcggccct	ctagatgcat	gctcgcgcgc	ccgccagtgt	gatggatata	tgcagaattc	60
gcccttgagc	gatanccgcg	gcaggtccaa	ttgatttgat	ggtaagggag	ggatcgttga	120
ccnctctctg	tatgtaaagg	atgcgtaggg	atgggagggc	gatgaggact	aggatgatgg	180
cgggcaggat	agttcagacg	gtttctatct	cctgagcgct	tgagatgtta	gtattagtta	240
gttttggtgt	gagtgttagg	aaaagggcat	acaggactag	gaagcagata	aggaaaatga	300
ctatgagggc	gtgatcatga	aaggtgataa	gctcttctat	gataggggaa	gtagcgtctt	360
gtanac						366

<210> 543
 <211> 460
 <212> DNA
 <213> Homo sapien

<400> 543

cctactatgg	gtgttaaatt	ttttactctc	tctacaaggt	tttttcttag	tgtccaaaga	60
gctgttctct	tttggactaa	cagttaaatt	tacaagggga	tttagagggg	tctgtgggca	120
aattttaaagt	tgaactaaga	ttctatcttg	ggcaaccagc	tatcaccagg	ctcggtaggt	180
ttgtgcctct	tacctataaa	tcttcccact	attttgctac	atagacgggt	gtgctctttt	240
agctgttctt	aggtagctcg	tctgggtttc	ggggctcttag	ctttggctct	ccttgcaaag	300
ttatttctag	ttaattcatt	atgcagaagg	tataggggtt	agtccttgct	atattatgct	360
tggttataat	ttttcatctt	tcccttgagg	tactatatct	attgcgccag	gtttcaattt	420
ctatcgctta	tactttatct	gggtaaatgg	tttggctaag			460

<210> 544
 <211> 116
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(116)
 <223> n = A,T,C or G

<400> 544
 ccgccagtgt gatggatata tgcagaattc gcccttttga gngctngcgc ccgggcaggt 60
 ctgtttcagc agctcctcct tcttcttccc gcgangatct cgagccttga tcttgg 116

<210> 545
 <211> 380
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1) ... (380)
 <223> n = A,T,C or G

<400> 545
 cgacggatcg atnagctnga tatcgaattc ggacgagcat ggcgtattgc tgcagatatg 60
 gattcttcag aatgctccat gacaaatgta ctgacgggaa gncnatctaa aggagggcatt 120
 gtnatgagag aaaggtctcg agctccagat aaagagagat acagagttct tgggaattgga 180
 gttgcagaaa cagtaagaca atcgattgtg ggggaagcgtt ctttttagaga atctttggcc 240
 ttcactccaa agcgttggtc ttcacataata ataagtagct cgtgccgaat tcttgcagcc 300
 cgggggatcc actagttcta gagcggccgc caccgaggag gagctccagc ttttgttccc 360
 tttagtggag gtttaatttcg 380

<210> 546
 <211> 418
 <212> DNA
 <213> Homo sapien

<400> 546
 ccagggcaat taggcaggag aaggaaataa aggggtattca attaggaaaa gaggaagtca 60
 aattgtccct gtttgcggat gacatgattg tatatctaga aaaccccatc gtctcagccc 120
 aaaatctcct taagctgata agcaacttca gcaaagtctc aggatataaa atcaatgtac 180
 aaaaatcaca agcattctta tacaccaata acagaccaac agagagccaa attatgagtg 240
 aactcccatc cacaattgct tcagagaata aaatacctgg gaatccaact tacaagggat 300
 gtgaaggacc tcttcaagga gaactacaaa ccactgctca aggaaataaa agaggatata 360
 aacaaatgga agaacattcc atgctcatgg gtaggaagaa tcaatatcat gaaaatgg 418

<210> 547
 <211> 172
 <212> DNA
 <213> Homo sapien

<400> 547
 cctgaggttg ggagaaattt tgtccatttc tttagaacca aaattggcaa ccagagagta 60
 tttggatgtt acacaaaata tctagtttcc ctttctagcc taaattgggt tgtttatagc 120
 accgtctct ccatttgaga aaaatggtta ggatgctggt gcagggatga gg 172

<210> 548
 <211> 367
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (367)

180

<223> n = A,T,C or G

<400> 548

ggctctgactt aagagaaaca atggaaggca agaggcagta gaataatata ttcaaaagat	60
gcaaaagaaa aaaacctctc agccacgaat tccttatcca gcaattat ttcaaaaatg	120
aaaataacac aaagacttag ccagataaac agaataatta actgaagctg ttgctgggag	180
acctaccata taaaaataaa aaactctaaa aaaattccta tggctaaaag caagttacag	240
aagacagtca cttgaatcca ctttttaaaa aaagcactga tatacgtaat attgacatta	300
taaaagacag taaaaatgca tttcttcttt ataataaata gcttattaaa taacatgtgt	360
ataatgg	367

<210> 549

<211> 418

<212> DNA

<213> Homo sapien

<400> 549

ccaaatcaga acctagagtg agcattctat aaactcactt ttgctttgat ccttgaagat	60
cacaagtttt gatactgttg aaatctctac tctttcaaca ctttaattaa atggcattta	120
gaatttcata tacttctgtt gttgtttcca caactttaa ctggatttag aaatacttat	180
aatgtaaatg caagagcttt aacttagtaa ccgtatttcc tattttttgt tgtttttctt	240
ttgccagaat ttctgtttgt ctacaataaa gtccagcgaa atacagtatt tgggttaggtt	300
acttgttaac ataaaatttt atcatttgta gagtttttac ttaaccttcc tattctctag	360
tctctataat ctttcaatga agataaccag ttacgaatat ctctatatac atattagg	418

<210> 550

<211> 234

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(234)

<223> n = A,T,C or G

<400> 550

cctaccgccc gcagnaactga tcattctatt tccccctcta ttgatcccca cctccaaata	60
tctcatcaac aaccgactaa ttaccaccca acactcaca caaaactaac taataactaac	120
atctcagacg ctcaggaaat agaaaccgtc tgaactatcc tgcgcccat catcctagtc	180
ctcctgccc tcccatccct accatccctt tacataacag acgaggcca cgat	234

<210> 551

<211> 542

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(542)

<223> n = A,T,C or G

<400> 551

cacccctacc cennctctca taaaagttnc tctccctgga tctctttttt cctcatgag	60
tgcgccggttg cccaagtcaa aaacctggga gtgatataaa ctccccacac atccagtcag	120
tcactcatca actctattga ttctgtctgc taaatatatn tcaattgtat taacttaaac	180

atatgcatan	ggcactttct	tcttcactgc	atTTTTgtgg	gctgcactta	cctttcaggt	240
aacgacaaca	ctggccccct	ttgcccttct	agtcagaagt	gccaaaatga	tgagagctag	300
ccatgacaaa	cccacagcca	acattacact	gaatgtgcaa	aactggaagg	gcattccaaac	360
agaggagggg	agagaggaat	agacaggaag	tcaaactgtc	tctgtttaca	gatgacatgt	420
ttctatatct	ataaagcccc	atagtcttgg	cccccaggct	tcttctgctg	ataaacttta	480
gcaaagtctt	agcatacaaa	atcaatgtgc	aaaaattact	aacagtcccta	tacatcaagt	540
ca						542

<210> 552
 <211> 411
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(411)
 <223> n = A,T,C or G

<400> 552						
cctggntgac	aaggaggtgc	ctgtnatgtg	aagattttgag	gaaagagcat	tccaggcagg	60
gggaaggctt	gatgcaaagg	gtctactgca	ggcattagct	gagcttattt	aaagatcaga	120
atgaaggcca	ttgtggctag	aacagagtg	acaggaagga	atggtagacc	gcaaagctga	180
agaagtggc	aggattgagc	tctcataant	catggcaaag	agttcccatt	tcattgtttg	240
acggaaataa	attggaagg	cttaagtagg	agaagatttg	attagattta	cattttacga	300
agaagcactc	tggatgttat	gtgaagaaat	ggcctttgca	gggcaagggt	ggaaacaaag	360
agatcagtta	ggaaattatt	ggagtagctg	aggattggat	gaggggatgt	g	411

<210> 553
 <211> 631
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(631)
 <223> n = A,T,C or G

<400> 553						
ccgggattag	aactaaaaca	agtgagatca	ccccctctaat	tattttctgaa	cttgggttaat	60
aaaagtttat	aagattttta	tgaagcagcc	actgtatgat	attttaagca	aatatgttat	120
ttaaaatatt	gattccttccc	ttggaccacc	ttcatgttag	ttgggtatta	taaataagag	180
atacaaccat	gaatatatta	tgtttatata	aaatcaatct	gaacacaatt	cataaagatt	240
tctcttttat	accttctctca	ctggccccct	ccacctgccc	atagtcacca	aattctgttt	300
taaatcaatg	acctaaagatc	aacaatgaag	tattttataa	atgtatttat	gctgctagac	360
tgtgggtcaa	atgtttccat	tttcaaatta	tttanaattc	ttatgagttt	aaaatttgta	420
aattttctaaa	tccaatcatg	taaaatgaaa	ctgttgctcc	attggagtag	tctcccacct	480
aaatatcaag	atggctatat	gctaaaaaga	gaaaatatgg	tcaagtctaa	aatggctaatt	540
tgtcctatga	tgtctattatc	atagactaac	gacntttatc	ttcaaaacac	caaattgtct	600
ttagaaaaat	taatgtgatt	acaggtagag	g			631

<210> 554
 <211> 558
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(558)
 <223> n = A,T,C or G

<400> 554

ccaggntagt	ctccaactcc	tgaccttagc	tgatccaccc	acctcggcct	cccaaagtgc	60
tgggattaca	ggcatgagcc	actgcgccc	gccaaacttg	atatgcattt	ttaaataagt	120
taatacatta	ttcatgggtt	agtctcatta	tatattctat	ggccactttt	gaaatttcat	180
ctaaccaaaa	tcattttcat	cctgcaattt	gaggtttgga	cacaatgggg	attgatcagt	240
aattttcttca	tatgcccttt	ctcaaggaaa	tagtttctta	tgaaaaaaaa	gtcctatggt	300
ttcatgtaag	ttctcttttt	ggagaagaaa	aggagacatt	cttacttagc	actctcagtt	360
ttacaaaacg	ctgccaacct	taaaatttgt	ctattgatcc	ccaaggcaca	caaccaatag	420
tctgtcaata	acccggaata	acattttctt	aaggccccag	taactttcac	atgtttgggt	480
tccaatcttc	acctagaatc	ttgttaagaa	aagtaaacca	ttcactcttc	tagaaactct	540
aaggttgctt	cttagggg					558

<210> 555
 <211> 212
 <212> DNA
 <213> Homo sapien

<400> 555

ccaggatatt	gcataatggc	ttttcttctg	ttgcctttgt	tcctttgtgg	ccccagctaa	60
ttgcctgaga	gtgccactgt	tagttttcaa	ctctttctga	tagaaacct	gtgtactaac	120
atggaaatct	taggtaatct	gctttttcaa	agcacaatgc	agaatttatt	ggcgggtggtg	180
taactttaag	aatatccgag	aagccaccaa	gg			212

<210> 556
 <211> 219
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(219)
 <223> n = A,T,C or G

<400> 556

ccatgtgtct	atctggagag	aaggggaaac	agcaagtgca	aaggccctga	gatggaacat	60
atctggagaa	ttcgaagaat	ggtaagaagg	ccagagtggg	gcagaacaag	tgtgggagag	120
agttgtagga	gatgagatca	aaggctagga	atgaagtgtg	aggccatgtc	atgtgacctt	180
gtatgtcctt	gtaaggcttt	tttttttttt	tttnacct			219

<210> 557
 <211> 482
 <212> DNA
 <213> Homo sapien

<400> 557

cctactatgg	gtgttaaatt	ttttactctc	tctacaaggt	tttttcttag	tgtccaaaga	60
gctgttcttc	tttggaactaa	cagttaaatt	tacaagggga	tttagagggt	tctgtgggca	120
aatttaaagt	tgaactaaga	ttctatcttg	gacaaccagc	tatcaccagg	ctcggtaggt	180
ttgtcgcttc	tacctataaa	tcttccact	attttgctac	atagacgggt	gtgctctttt	240
agctgttctt	aggtagctcg	tctgggttctg	ggggtcttag	ctttggctct	ccttgcaaaag	300

```

ttattttctag ttaattcatt atgcagaagg tataggggtt agtccttgct atattatgct      360
tggttataat ttttcattct tcccttgccg tactatatct attgcgccag gtttcaattt      420
ccatgccta tactttattt gggtaaatgg tttggctaag gttgtctggt agtaagggtg      480
ag                                                                                   482

```

```

<210> 558
<211> 679
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(679)
<223> n = A,T,C or G

```

```

<400> 558
ctgtnaaaat tctgaacctt tccccaaaag aaaaaccgtg aaatacaagt tttaggaggt      60
ggagcaaaga aaagccaagt tattttaaac caataaacac aagagacaat tctgctggag      120
aattttacttt ctccaaaaca tcaaattggac tttaaagcag aagaccacat tttatgagaa      180
agttatgtca ctgaaaagct tcatgtaaag tgactttgta aatggaatat ttttaaataa      240
taaaaagaaa ataacttttc caggaatcct ttggagaggc tgataaccag atattaaatt      300
atcaattttg ccaaagtggg cttttaaaaa atgtgttact tttaaaaact aacttgaaag      360
aattttatgag gcaatctatc tgagtatgtt tattgttgct ccattggctt tcaggatttt      420
ggtcattttc ctgttaactc ttacatcaga gaataaagaa aagaaaatga aactttgtta      480
ggaactggga tggaaaatgt agtcccagac agatctactg acctcgactg agtttcagaa      540
atatcccagg attttgggta ttcatgcctt tcttttgtga ctttctttca aattagccaa      600
ttaaagatac cctttcaatc accggtgaca tcagtacaac agtttttcaa cagttttctc      660
tctcctgacc aaacagttt                                                                 679

```

```

<210> 559
<211> 488
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(488)
<223> n = A,T,C or G

```

```

<400> 559
ccccactgta ctccagcctg ggtgacccca tctcaaagaa gaaaagttac cagatgtcat      60
gggtaaaagg tggtcttcaa gtggcctcat aagttgtctt gcatttaaat tcaggggaatt      120
cattggacca atagggttaca ttttcgttcc tttttgtttt tggttcatct gtttaagcagt      180
gggggcctaa ttactgctcc tttgtaaaaa cacattttcc caaagaacac tgaattaccg      240
ttcaaactgg ttgttgatgg gtaacaaggg ctgtttttgc tgccccaaaa gggcttaaca      300
atttaggcgg atagtttact taaaaaaaaa aatccttttg agacatactg aaaatgcaaa      360
ctagtttcta aattatcaat tccctacatg aanaagcagt ttgccanagt ttagtctcan      420
aaaatgactg gttggctcta tttaaatcan aacccaattt ctacgcacct gcccgcgcgg      480
ccaagggc                                                                                   488

```

```

<210> 560
<211> 602
<212> DNA
<213> Homo sapien

```

<220>
 <221> misc_feature
 <222> (1)...(602)
 <223> n = A,T,C or G

<400> 560
 cctanttaag aattccttgc cttagtgggtg aacaaggact aaacacagac aatgggtgaa 60
 acacagagcg taattcacat aacagagagt aggcaacctt agaataaat tgatgcagac 120
 tcctatagaa ttcctctgtt atgactgggt tcttattttc tcttccttgt atgtagtga 180
 aatttcacat ttatgaatag ttccttggat ctttttttaa agttgtgaat gcgagtgttt 240
 ggctttgtaa tacaactttt tagtatccag aagataacca gtgctctacc aataaagatc 300
 ttttgataca aagggtttta acttctgcca gttcttactc atttttttca ggttttttat 360
 acattttctta aacaacacat acattatgta aaatataaga attaatgtac attctcaagg 420
 ccagattcag tgacaaaatg cactaccgga atctagtaac acatttactc cttgctgcat 480
 ataagtggcg tgtaagaaat acagggtata ttgttttgtg atccatgcag taaatgttca 540
 caaatatcag gcaaacaaact agacgntctt cagctactaa aattaactgt cccagtcaca 600
 aa 602

<210> 561
 <211> 683
 <212> DNA
 <213> Homo sapien

<400> 561
 gtctatTTTT aaaaagaaag aaaaaaacca cttttttata gtccctagct ttgccatatg 60
 cccgccttaa gtggaaggaa agttaatcac ttaactatgt ttataaaaaa gaaaaaagg 120
 cttggaatgc tattactgtt cacacaaagt atgattctgt ttgaataagg caaatgctcc 180
 ttttttttaa aaaagacatt actgtaatat caaaaaccgt ggcagtttgt atacaactct 240
 gggcttgatt ttttttaaaa aaacagaatg aattgatgtc ttattttata aatgttctat 300
 atttattagg agaaaacttt atattgcctt ttttatcaat catgtaacag gcttatagct 360
 ttccaacaga gctgcttgcc aaacaatttt tttgtttat taaacagtgc tgaaacaaac 420
 aggatcagca ttactttaag atgttaagaa tgaggacttt taatcagcgc aaccaagata 480
 ttgttacctg tatgcattcc caaagtctag atgctcagta tgttcagtc tatcttcag 540
 aatcagtga cagattaccc tttttttggt attcactcta catctgcca cctagttcac 600
 cttggttttg tgtctgctgt agaaggggaa cataacttgg ttaaaccgta gggattatca 660
 ttgtatacat gctgtgaaca tgt 683

<210> 562
 <211> 420
 <212> DNA
 <213> Homo sapien

<400> 562
 gcactttttt tccagtaagg attcatctct tgcctccta tatggtcatt atattttata 60
 ttttacatat ttataaacat gacatatgta tttatgttcc acaaagggtc ttgaatagaa 120
 tttacacata gagttccctg ggttgatgtg tttatcaaaa tggaagataa agtgaattaa 180
 ttactttaaat atttaacact attgaataga aataatttcc ccaatattgc ttcattgattt 240
 agacagtcta ttaaatgttt aagcaaggca ctagactaag tttattaaga caaattttgg 300
 aatatgtgca gaaatatgac ctggctaata gtacagagtc aaagctgggt gaatgggtgt 360
 atatagtgga ttcagattga tgtggcagtg gtgggttacac taggggcact aagggttatcc 420

<210> 563
 <211> 482
 <212> DNA
 <213> Homo sapien


```

<400> 563
ctccacctta ctaccagaca accttagcca aaccatttac ccaaataaag tataggcgat      60
agaaattgaa acctggcgca atagatatag taccgcaagg gaaagatgaa aaattataac      120
caagcataat atagcaagga ctaaccctta taccttctgc ataatgaatt aactagaaat      180
aactttgcaa ggagagccaa agctaagacc cccgaaacca gacgagctac ctaagaacag      240
ctaaaagagc acacccgtct atgtagcaaa atagtgggaa gatttatagg tagaggcgac      300
aaacctaccg ggcttgggtg tagctgggtg tccaagatag aatcttagtt caactttaac      360
tttgcccaca gaacctctta aatccccttg taaatttaac tgttagtcca aagaggaaca      420
gctctttgga cactaggaaa aaaccttgta gagagagtaa aaaatttaac acccatagta      480
gg                                              482

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```

<210> 564
<211> 302
<212> DNA
<213> Homo sapien

```

```

<400> 564
ctggaagtga aggtactaat atacaaatgg ctcttgtttc tgaatatgtg atataatttg      60
tgaatctttg gaaactgaat tttttctatg gagtgc aaat atagaagggt tattttacaa      120
tgtttggtgt gaaaagaatt cactttgtta acaactatta aggctggaag tttagtgaag      180
gtgcatagtt ttgaaagcta cacagggtgaa aaatcaaact tattgtttgt aattttgctg      240
ttacatggtt agttactttg acagcaattt tctaatagata atgtgattta tgatttaaaa      300
gg                                              302

```

```

<210> 565
<211> 554
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(554)
<223> n = A,T,C or G

```

```

<400> 565
ccanngtgac atcatggcaa tacagcaaga attctgnnat ttatttagaa gcctcaagga      60
gaaggatcct ggagcccctg aatgagagtt tcttctccat gcctctcccc agtcaaaata      120
catggaaata ttcatagaag cattgtaccc agcatgataa ggaaggatgg agaattggtc      180
cttatatctc tgttcacaag acatcaacac tcttaagtaa ctgtatgaaa taaattctct      240
gctgaaagca aataaaccat ctgaaaggtc ttctgggttac ttacacagat ttcttagaga      300
atctgaaatc agcctaacag ggaagattaa tttttaaatg aatccaagtt aatgaaagca      360
aagaactctt atacagaaat acattttcct attataaagc aggactacct tccctaattt      420
ctgatagacc taggacaatt tgaatgggca ttgaaattct tttgggtgaa ttacgcaaac      480
aagcaaagga aaagtctcaa ttattattgg aaaatttggg gagagattat tatctcttga      540
tctcctagtn natt                                              554

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```

<210> 566
<211> 631
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(631)

```

<223> n = A,T,C or G

<400> 566

ncgaagctgt gaanncattc acacggaatc tgganggtat tactgttaact tcttataata	60
cataatataa aagtttttga aagatataga cacaattaac ccctaaacaa cacactatct	120
gattctcaca agcaatggct atttaacaag atgtctcagg cccctcctct ctctctctct	180
tttcacacac cttaaagatag catttagcag caagttagtc agacaaaaca aacataaata	240
tcttcacatt tcttatgttt gtttttaact ttacttcata aagccactga taattgaggt	300
ttctttcaag tataagattt ctaaaattaa aaactgtttt tgacatattt ttataaagaa	360
ataaaaagca aaacgcaatc caactattta tatgagtcct tcttctccaa cagctttaga	420
tggtttcttg agtacttttt acacagaata tttttattaa aatcagttct aattcattta	480
tgcagattag gggaaaatga ttcataataa attaacttta aaattacctt ctatctgctt	540
ctacctctat ccccccatca ccaccaaate tgttgctaca gtgaactgta gccaatgtct	600
gtttgagggg gcccaaagca tctggtaate t	631

<210> 567

<211> 510

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(510)

<223> n = A,T,C or G

<400> 567

cctatnatag cttctctagc tatcatactc caatcagcna aaaatgagaa aatgttgaga	60
aatagaagat aattcctcat ttaaggncac cttctanaat ttgtgcttaa nantctgttt	120
tcttctcatg ggccagcact tcggcaactg ggaaaaatta ngngtacagg gatctaggna	180
atactgttta tttagagcaat aatatattgn gctaacgttc aggcaccta ttactgagaa	240
ataagggaaa atgagtgtaa agtacaaacta agagtctcgg ctacagggaa aaataccatc	300
agttaaatat ccatagtcct agagcattta tgtaaaactg caatttgaat cctgcaatac	360
atthttggctt tttctcagc gataccatgt gtgggaagtt gttctgtcaa ggtgggtcgg	420
ataatttgcc ctggaaaagga cggatagtga ctttctcgac atgtaaaaca tttgatcctg	480
aagacacaag tcaagaaata ggcattggtg	510

<210> 568

<211> 180

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(180)

<223> n = A,T,C or G

<400> 568

ttaatntgac ncacgcttat gcggaggaga atgntttcat gttacttata ctaacattag	60
ttcttctata gggatgataa ttgggtccat tgggtgtgag gagttcagtt atatgtttgg	120
gatttttttag gtatgtgggtg ttgagcttga acgctttctt aattgggtggc tgcttttagg	180

<210> 569

<211> 237

<212> DNA

<213> Homo sapien

<400> 569

ccaattgatt	tgatggtaag	ggagggatcg	ttgacctcgt	ctgttatgta	aaggatgcgt	60
agggatggga	gggcgatgag	gactaggatg	atggcgggca	ggatagttca	gacggtttct	120
atttcctgag	cgtctgagat	gttagtatta	gttagttttg	ttgtgagtgt	caggaaaagg	180
gcatacagga	ctaggaagca	gataaggaaa	atgactatga	gggcgtgatc	atgaaag	237

<210> 570

<211> 352

<212> DNA

<213> Homo sapien

<400> 570

ctgtctctcc	atthagagcc	ccagttgggc	ctgacctctt	acaaatttgg	tgttttcact	60
ttgatgttta	tgaaccgatt	gcattaaaaa	tgaggataaa	tgattcaggg	ttagagaaac	120
tattatttat	acaaatgtgg	ttaacacctc	atcattttta	attggctgtg	ctaataatgc	180
tcattgtgct	cttcaggggt	atgtgtgtgt	gtgtgtgtgt	gttttgcttg	aatctgcaac	240
ctacatttgc	tctggcagta	tgttgagtat	atgctagaat	agaatggacc	taggcaactc	300
taaggtccta	caactaaata	cacttactta	ggaaacctcc	taaataagta	gg	352

<210> 571

<211> 402

<212> DNA

<213> Homo sapien

<400> 571

ctgattttta	caataactac	tgtgttctcg	gcaatagtgt	gttctgatta	gaaatgacca	60
atattatact	aagaaaagat	acgactttat	tttctggtag	atagaaataa	atagctatat	120
ccatgtactg	tagtttttct	tcaacatcaa	tgttcattgt	aatgttactg	atcatgcatt	180
gttgaggtgg	tctgaatgtt	ctgacattaa	cagttttcca	tgaaaacggt	ttattgtgtt	240
tttaatttat	ttattaagat	ggattctcag	atatttatat	ttttatttta	tttgtttcta	300
ccttgaggtc	ttttgacatg	tggaaagtga	atttgaatga	aaaatttaag	cattgtttgc	360
ttattgttcc	aagacattgt	caataaaaagc	atttaagttg	aa		402

<210> 572

<211> 70

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(70)

<223> n = A,T,C or G

<400> 572

tggatccgag	ctcggtacca	agcttggcgt	aatcatgggc	atagctgttt	cctgtgntcg	60
ttttacaacg						70

<210> 573

<211> 423

<212> DNA

<213> Homo sapien

<400> 573

ccaatggttt	cttagtgaaa	gagtacacta	gctctgaatg	caatgccctc	agaaagatat	60
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cattcataga gacatacaaa gcacatggca acatgacatt ggaatacacg attctgagca 120
tcttcattca tgaccaacct ggctatagat ttcagatgtc ctcttggtc gaaggatata 180
tgggatatcc atgctcactt gcattccttt ccccttaatt tcattttcta agtccttctt 240
gtattgtttc taaaagaaca gaaaataatc ttggagcttt gcttaagctt taatagcgat 300
gttgaaattt acatgtttga atctcaaagc caccatgtg gaaagaaaac ttatgctctt 360
tccagctatg attcacggca tttattttta actttgata tgggtggtg ctttaactggc 420
tgg 423

```

```

<210> 574
<211> 129
<212> DNA
<213> Homo sapien

```

```

<400> 574
ctgttaaaag aacaaactta gcaatatata acagtttgct aacaggattt ttgactattc 60
actttgcgag ttatttttaa aaatccactt ttttactgag tcttactaca taccaggcac 120
tgtacttgg 129

```

```

<210> 575
<211> 684
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(684)
<223> n = A,T,C or G

```

```

<400> 575
ccagatntga cttttcaaaa ctactcacat tgtgaaaaan gcaggaacaa atctagtttc 60
aagttcagca tgccgttccc tgtttaattc ataaaacaca actggcagaa gtattacttg 120
aagcaaaaca aaagtaacgt gggaaacttg cttatttgcta agccacaatg tatttttcca 180
ggaatagcat aaatttgcca tctttcttgt gtctatggaa aaggggttta gaattgtttc 240
actaaaaatt aaatttctat attgtcaaac atgattgtat actcaaattt taaaatgtga 300
agggaaacact tactaagcat ttccctgggtg tgccactata ttaagtctta gtaatatgat 360
atagtttatt tcaatttttt ttcaactcat acttccttta aaatagcact gacccaaaaga 420
aagttaacat gagcttcctg tacaattttt aatctttttg cagaaaaata aactgagaaa 480
ggctaaaatt gttttattta agccactata ccaagacata ttgatttcac caatataaaa 540
attgagatag ttacattttt ttggtacatc tttaaaatct ggtatgtatt tttatactga 600
cagcacatct caatttggac aagctacatt tccagggctc aatagtcacc atgaatctca 660
attgtaatca aagaggttgg cctg 684

```

```

<210> 576
<211> 134
<212> DNA
<213> Homo sapien

```

```

<400> 576
ccttattttct cttgtccttt cgtacagggg ggaatttgaa gtagatagaa accgacctgg 60
attactccgg tctgaactca gatcacgtag gactttaatc gttgaacaaa cgaaccttta 120
atagcggctg cacc 134

```

```

<210> 577
<211> 133
<212> DNA

```

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(133)

<223> n = A,T,C or G

<400> 577

ctgtctctcc attnagaagc cccantnggt cctnacctct tacaaatttg gtgttttcac	60
tttgatgttt atgaaccgat tgcattaaaa atgcaggata atgattcagg gttaganaaa	120
ctattattta tac	133

<210> 578

<211> 200

<212> DNA

<213> Homo sapien

<400> 578

cctcaaatct atcttcaaaag gtgaccagc aatcagtgtc aatgccttta ctgtagttaa	60
cctggtaatt tcattcttta gtctctccaa gaaaatctga agtgtattag gcaagtcaga	120
acccaaattg tctccaaggt tgcaataat ttgtccata caggaaatag ccctttcctt	180
gacttcctga tcaatgtcag	200

<210> 579

<211> 402

<212> DNA

<213> Homo sapien

<400> 579

ctgattttta caataactac tgtgttctcg gcaatagtgt gttctgatta gaaatgacca	60
atattatact aagaaaagat acgactttat tttctggtag atagaaataa atagctatat	120
ccatgtactg tagtttttct tcaacatcaa tgttcattgt aatgttactg atcatgcatt	180
gttgagggtg tctgaatgtt ctgacattaa cagttttcca tgaaaacggt ttattgtgtt	240
tttaatttat ttattaagat ggattctcag atatttatat ttttatttta tttgtttcta	300
ccttgagggtc ttttgacatg tggaaagtga atttgaatga aaaatttaag cattgtttgc	360
ttattgttcc aagacattgt caataaaagc atttaagttg aa	402

<210> 580

<211> 245

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(245)

<223> n = A,T,C or G

<400> 580

ccaattgatt tgatggtaag ggagggatcg ttgacctcgt ctgttatgta aaggatgcgt	60
agggatggga gggcgatgan gactaagatg atggcgggca ggatagttca gacngtttct	120
atttcttgag cgtctgagat gttagtatta gttagttttg ttgtgagtgt taggaaaagg	180
gcatacagga ctaggaagca gataaagaaa atgactntta gggcgtgac atnaaanggg	240
ataaa	245

<210> 581

<211> 294
 <212> DNA
 <213> Homo sapien

<400> 581

tgacagcga	gtaggctac	aagatgctac	tttctctac	atagagaga	ttatctctt	60
tcctgatcac	gccctcatag	tcattttcct	tatctgcttc	ctagtctctgt	atgccctttt	120
cctaacactc	acaacaaaac	taactaatac	taacatctca	gacgctcagg	aaatagaaac	180
cgtctgaact	atcttgccc	ccatcatcct	agtcctcctc	gccctcccat	ccctacgcat	240
cctttacata	acagacgagg	tcaacgatcc	ctcccttacc	atcaaataca	ttgg	294

<210> 582
 <211> 230
 <212> DNA
 <213> Homo sapien

<400> 582

gaggtgcgcc	tcctagtcct	tttctctac	tgcttctctag	tcctgtatgc	ccttttctta	60
acactcacia	caaaactaac	taataactaac	atctcagacg	ctcaggaaat	agaaaccgtc	120
tgaactatcc	tgcccgcct	catcttagtc	ctcatcgccc	tcccatccct	acgcctctt	180
tacataacag	acgagggtcaa	cgatccctcc	cttaccatca	aatcaattgg		230

<210> 583
 <211> 481
 <212> DNA
 <213> Homo sapien

<400> 583

ccaaggggtgt	tctgcctgcc	tcagcctccc	aaagtgctgg	gattacaggt	gtgagccact	60
gtgcctgacc	acaggaaaac	ttattttaa	gagagatttg	actcgaaaga	tcccgttttt	120
ttaaggctct	tagttcttaa	aagcggcaca	taatagaatt	agtataatcc	caaataaatt	180
ttcagtagat	ttttggtgta	acttgagaag	atgattctgt	catttttagt	gacaatttaa	240
aagacctgaa	attgtctaca	gccatagaaa	gtgaactact	gatagttggt	tctgtaaagt	300
tttattggaa	cacaaccaca	cctatttgtt	catctgtatt	gtctttgggt	actttgtgca	360
gagaccatgg	cccacaaacc	taaaacattc	actttctagc	tctttaagaa	ataattggcc	420
cactgacacc	ctgggtcttaa	ggctctagacc	aattatttct	caagagtatt	agctgaatca	480
g						481

<210> 584
 <211> 306
 <212> DNA
 <213> Homo sapien

<400> 584

ccaattaaga	gtctaaattta	caaaaataatc	tctatcagga	ggctttaagg	tttaattgtct	60
ctaaagtccc	tatggatata	agaggcttga	atgtactgaa	ttcaaatttg	gttttttaaat	120
gttataatag	tttaggccc	agagccacat	atttctgtct	aagaatagaa	agcatagcta	180
gctgcccaca	cagaatattc	atatagaggt	ggggggcaag	aacaaaattt	attcatttga	240
tacatagaaa	tgggactact	tagaatagac	tcataataga	aagcatcctc	tggtttctca	300
tctcag						306

<210> 585
 <211> 308
 <212> DNA
 <213> Homo sapien

<400> 585
 ccagaatggt acagagtgga ggggtgttctg ctaatgactt cagagaagta ttttaagaaaa 60
 acatagaaaa acgtgtgcgg agtttgccag aaatagatgg cttgagcaaa gagacgggtgt 120
 tgagctcatg gatagccaaa tatgatgcca tttacagagg tgaagaggac ttgtgcaaac 180
 agccaaatag aatggccta agtgcagtgt ctgaacttat tctgagcaag gaacaactct 240
 atgaaatggt tcagcagatt ctgggtatta aaaaactaga acaccagctc ctttataatg 300
 catgtcag 308

<210> 586
 <211> 416
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(416)
 <223> n = A,T,C or G

<400> 586
 cctgtctttg aatggatgaa atagggttaat aaaaaacatc actgttttaa aactagaaca 60
 ctgaaaaatt ctaggaaagc ttattttccc ttatattttt atggnaacttt caacacttna 120
 caacactatt tnaattaann tttnttctag agtttatann atatcagtac attcttttct 180
 gtggatgcaa taatatagaa tcttatttca aatcttactg gcaggntctn ttaaattctt 240
 caacggntgn catagtgatt aacccaaaatt agttatgatt tctgcctatc tgtgtgagaa 300
 cttacagggg aaattgttct aaacctgagg aacatgaagt aactgtactg cacactccaa 360
 atgatgacag tcattttata tcaccttcaa ttacccaaca gcttttaata gtctgg 416

<210> 587
 <211> 382
 <212> DNA
 <213> Homo sapien

<400> 587
 cctactatgg gtgttaaatt ttttactctc tctacaaggt tttttcctag tgtccaaaga 60
 gctgttcttc ttggactaa cagttaaatt tacaagggga tttagagggt tctgtgggca 120
 aatttaaagt tgaactaaga ttctatcttg gacaaccagc tatcaccagg ctcggtagggt 180
 ttgtgccttc tacctataaa tcttccact attttgctac atagacgggt gtgctctttt 240
 agctgttctt aggtagctcg tctgggttctg ggggtcttag ctttggtctt ccttgcaaag 300
 ttattttctag ttaattcatt atgcagaagg tataggggtt agtccttgct atattatgct 360
 tgggtataat ttttcatctt tc 382

<210> 588
 <211> 307
 <212> DNA
 <213> Homo sapien

<400> 588
 cctactcttc tccgtccatt gtactatctg cccgtgggtg ggatggcagt aggatcatat 60
 ttgatgactt ccgagaagca tattattggc ttcgtcataa tactccagag gatgcgaagg 120
 tcatgtcctg gtgggattat ggctatcaga ttacagctat ggcaaaccga acaatttttag 180
 tggacaataa cacatggact aataccata tttctcgagt agggcaggca atggcgcca 240
 cagaggaaaa agcctatgag atcatgaggg agctcgatgt cagctatgtg ctggtcattt 300
 ttggagg 307

<210> 589
 <211> 89
 <212> DNA
 <213> Homo sapien

<400> 589

cctgggtgat	tgaggatgca	atgagctgtg	attgtgccac	cacactccag	cctgggcaat	60
acagcaagac	tgtctcaaaa	aaaaaaaaa				89

<210> 590
 <211> 456
 <212> DNA
 <213> Homo sapien

<400> 590

cctcagttct	tgattgtggt	tgacggggcg	tcaccatgaa	ggagcccatt	tagtataaag	60
cttccaacct	tttctcttaa	tgtttctttt	aatcttttaa	accatcttca	agtgcatagg	120
ggagtttccg	atgccagagg	atgaaagcaa	gtgctctctc	cacctctctc	tcccagagtg	180
aaaacaaatc	cttttgctga	tacttgcttc	aaaagcctcc	attgtaaagc	ttctcagtga	240
cacaaaatac	tgagaggtaa	ctttttatca	atcaaaccac	ataccccaat	ttaacacctt	300
tcaatgctct	gaattcaact	gacagactaa	agggtgtttc	ctgtaacagt	ctgaaatatt	360
aagtgttttt	tttgttttgt	ttttaaatct	tatttcagaa	aacttctctc	tggggtagga	420
aagtacacat	gaagcagcaa	agtaacgaag	aaaaac			456

<210> 591
 <211> 289
 <212> DNA
 <213> Homo sapien

<400> 591

ccaattgatt	tgatggtaag	ggaggggatcg	ttgacctcgt	ctgttatgta	aaggatgcgt	60
agggatggga	gggcgatgag	gactaggatg	atggcgggca	ggatagtcca	gacggtttct	120
atttcttgag	cgtctgagat	gttagtatta	gttagttttg	ttgtgagtgt	taggaaaagg	180
gcatacagga	ctaggaagca	gataaggaaa	atgactatga	gggcgtgac	atgaaagggtg	240
ataagctctt	ctatgatagg	ggaagtagcg	tcttgtagac	ctacttgcg		289

<210> 592
 <211> 435
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(435)
 <223> n = A,T,C or G

<400> 592

cgcgttagat	gcgccttttc	cggcctgtgc	gtctgctctg	gttctctctca	ggcagcaaag	60
ctggggaagg	aagctcaggc	aggagcctcc	cgcacaccac	agcggcacia	gcagcagcta	120
aagcaccgca	ctttgctctg	ctaacccttt	acttaaatga	ggttttgccca	aatccacatc	180
tggaaaccgca	tcacacccat	ttgcaaggat	gtttgttctt	tgatgaaact	gcactctctac	240
tgcacatgan	ggctttcatt	gtaggacaag	aggagagttc	gtttattttt	gtaactgttt	300
tacatgttcc	gattanttaa	tcggnaagct	atgtcatttg	ctatgcctgt	tgtcttctaa	360
tctctcctta	ctaaaacatt	acttcaaatt	tnaattgacc	cttgtttata	atttatttaa	420
cgggatttgn	gtgtc					435

<210> 593
 <211> 633
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(633)
 <223> n = A,T,C or G

<400> 593
 ctgttttagtc agataattgt gtcgaattg attangaaaa taatagacca gccataaagc 60
 agcataaaat attatgaaac tattccagaa gtccagtaat atctttggga cctgctcata 120
 gcccaagttt tgtgaatact tttgtagtta aaaaaaattt ttactttacc agggcattgc 180
 aattcttttc catcagtga tttcattcta cagacttttc agagcatctc ataatcagtc 240
 aacaaaatcta tttcaaattgt gtttggttact aagcaacggg tgctaagagc ttctgtaatt 300
 aagatgaaag ttccaaggta acaatgcccc aacacagcac cattttcacc attttctgat 360
 aatgcaggag taggatgggt aaaagtgaag gaagaatcta ctctatggaa agcatggcac 420
 ctgaaatttc tgaagatatt ggctgtcttc tagcttatat gagagagagt gtttgtgctt 480
 tactaatcaa ccagtcattt ttttcttggt tggctgaaat gtacattcca gacatgaaca 540
 ggtagagtat gtgttggggg caggtttata ctgcatgggt gtgctgagac agggccacgt 600
 ggtgatgtaa atgatgctgn ctgacacgtg cag 633

<210> 594
 <211> 501
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(501)
 <223> n = A,T,C or G

<400> 594
 cctttacaag atgctggtag ctgtagcttg gacngggcag gctccaagat ggaaagaaaag 60
 tgagcatctg ctttttaggg attatccagt ctatactact ctgttctagc cacacaaaac 120
 aggttaagac agaaattggg accaagagtg ggtgttact acagcaaata cctgaaaatg 180
 tagaagaggc tttgaaatgt ggtaattgga agaagctggg agaatttgga ggagtaggct 240
 agaaaatgct tgtattttca tgaatggagc attaagaata attccggtga ggccataggg 300
 aaagtctaaa acttttcaga aattatgtaa gcgattgtga ttagtagggt ggtagaaata 360
 tagacagtaa aagcaattct gatgtggttt cagaggaaaa tgaaaaatat tagaaactga 420
 aggaaggggc atccttgcta taaactggca aagaacttgg ctgaaatgct tccatgtcca 480
 agagatttat ggcagaaatg t 501

<210> 595
 <211> 383
 <212> DNA
 <213> Homo sapien

<400> 595
 ctggtcacca tcatcccttt aatcaactca cacctgttta aagagtgttt ctgatttgac 60
 cttcatccct tagtttactg gcgttaaaaa aagtctcagc aattttcatt atttctcgtg 120
 ggtctcatta tcaaaccttt acttatttct gcattttcc tctgggcttc ttctagtttc 180
 tgccttacia gcaatgctgt tctgtaaatt tattgaaacc tctggaacat ttcaccttta 240

gagatggagg atggaaggat tggtagcaga agagggctaa gatacgtttt ctgtcttgag 300
 ctgaaagcac agtctactct ccttcgtttt gtcgatgaga aagttgaggc cagaggggag 360
 gtgacatgtt tagagtcacc cag 383

<210> 596

<211> 266

<212> DNA

<213> Homo sapien

<400> 596

ccatggctag gtttatagat agttgggttg ttggggtaaa tgagtgaggc aggagtccga 60
 ggagggttagt tgtggcaata aaaatgatta aggatactag tataagagat caggttcgtc 120
 ctttagtggt gtgtatggct atcatttggt ttgaggttag ttgattagt cattgttggg 180
 tggttaattag tcggttggtg atgagatatt tggaggtggg gatcaataga gggggaaata 240
 gaatgatcag tactgcggcg ggtagg 266

<210> 597

<211> 383

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(383)

<223> n = A,T,C or G

<400> 597

ctggtcacca tcattccctt aatcaactca caccngttta aagagtgttt ctgatttgac 60
 cttcatccct tagtttactg gcgttaaaaa aagtctcagc aattttcatt atttctcgtg 120
 ggtctcatta tcaaaccttt acttatttct gcatttttcc tctgggcttc ttctagtctc 180
 tgccttacia gcaatgctgt tctgtaaatt tattgaaacc tctggaacat ttcaccttta 240
 gagatggagg atggaaggat tggtagcaga agagggctaa gatacgtttt ctgtcttgag 300
 ctgaaagcac agtctactct ccttcgtttt gtcgatgaga aagttgaggc cagaggggag 360
 gtgacatgtt tagagtcacc cag 383

<210> 598

<211> 266

<212> DNA

<213> Homo sapien

<400> 598

ccatggctag gtttatagat agttgggttg ttgggtgtaaa tgagtgaggc aggagtccga 60
 ggagggttagt tgtggcaata aaaatgatta aggatactag tataagagat caggttcgtc 120
 ctttagtggt gtgtatggct atcatttggt ttgaggttag ttgattagt cattgttggg 180
 tggttaattag tcggttggtg atgagatatt tggaggtggg gatcaataga gggggaaata 240
 gaatgatcag tactgcggcg ggtagg 266

<210> 599

<211> 294

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(294)

<223> n = A,T,C or G

<400> 599

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ccaattgatt tgatggtaag ggagggatcg ttgaccacgt ctgttatgta aaggatgcgt      60
agggatggga gggcgatgag gactaggatg atggcgggca ggatagttca gacggtttct      120
atttcctgag cgtctgagat gttagtatta gttagttttg ttgtgagtgt taggaaaagg      180
gcatacagga ctagggaagca nataaggaaa atgactatga gggcgtgatc atgaaagggtg      240
ataagctctt ctatgatagg ggaagtagcg tctttagtagc ctacttgcg tgca              294

```

<210> 600

<211> 213

<212> DNA

<213> Homo sapien

<400> 600

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agatattggg ctgttaattg tcagttcagt gttttaatct gacgcaggct tatgcggagg      60
agaatgtttt catgttactt atactaacat tagttcttct atagggtgat agattggtcc      120
aattgggtgt gaggagtcca gttatatgtt tgggattttt taggtagtgg gtgttgagct      180
tgaacgcctt cttaattggt ggctgccttt agg                                  213

```

<210> 601

<211> 471

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(471)

<223> n = A,T,C or G

<400> 601

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nccactatg ggtgttaaat tttttactct ctctacaagg ttttttcccta gtgtccaaag      60
agctgttctt ctttggacta acagttaaatt ttacaagggg atttagaggg ttctgtgggc      120
aaatttaazag ttgaactaag attctatctt ggacaaccag ctatcaccag gctcggtagg      180
tttgtegcct ctacctataa atcttcccac tattttgcta catagacggg tgtgctcttt      240
tagctgttct taggtagctc gtctggtttc gggggctctta gctttggctc tctttgcaaa      300
gttattttcta gtttaattcat tatgcagaag gtataggggt tagtccttgc tatattatgc      360
ttgggtataa tttttcatct ttcccttgcg gtactatata tattgcgcca ggtttcaatt      420
tctatcgctt atacttttatt tgggtaaatg gtttggctaa ggttgtctgg t              471

```

<210> 602

<211> 482

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(482)

<223> n = A,T,C or G

<400> 602

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tgagcataca gcaataaaaa taacataatt tntatgtgta caatatttat ggaatacgtt      60
actggaacag ataaataatt tagttaataa catgacaaag aacagaaatt gtatacacta      120
tacagcatag taatagaata atgaatgatt aaagttatta atattaggta gaaaatgaag      180
ggatctcttg agagcagaac tcaaggaagc aagcaatttg ccttatgagg aaagagttac      240

```

```

ctgtggataa aggagaaact gaaaaattta caagtcaaga ctttttgagc aaaaacaaaa 300
atatgactat gagtcaccaa ttcagtagag tgaaaaaaaaaa gttgaagaga tatcttgga 360
gtaaaccatg ttgtggaaga gcagggtttt gataatcatg ggattattct gaatgaattt 420
taaatgcgat aggaatatat gagataattt caccagagaa taatatgac atgtttgcat 480
tt 482

```

```

<210> 603
<211> 372
<212> DNA
<213> Homo sapien

```

```

<400> 603
gttccaacct tcatttctga aactgttcta gagcactttg tctttctcgt agttcataac 60
ttaccccttc agtctagaat tagaattaca ttatctgttt tactacttta ctagactgta 120
agctcctaga agataaggac tagggagttc atctctgtat tccaccagaa ggtacagtga 180
ctcataacta gagtcttttag atgaaactta ctgagttgaa taacttaata tatttctgtt 240
ttcattccca agggaggcca tgtctggaga tagaccttga atttaataaa ttttaggcac 300
tataccattt cagtggagaa aattgttggg aaatttgggg ggatggatat ataaggggga 360
ggaagtcact gg 372

```

```

<210> 604
<211> 468
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(468)
<223> n = A,T,C or G

```

```

<400> 604
gongttttga gtgagtttct taatectgag ttctggnttg attgcactgt ggtctgagag 60
atagtttggt ataatttctg ttcttttaca cttactgagg agagctttac ttccaagtat 120
gtgggtcgatt ttggaatagg tgtggtgtcg tgcgaaaag aatgtatatt ctgttgattt 180
gggggtggaga gttctgtana tgtctattag gtccgcttgg tgcagagttg agttcaattc 240
ctggatagcc ttgttaactt tctgtctcgt tgatctgtct aatgttgaca gtgggggtggt 300
aaagtctccc attattattg tgtgggagtc taagtctctt tgtaggtcac taaggacttg 360
ctttatgaat ctgggtgctc ctgcattggg tgcacatata tttaggacag cnagctcttc 420
ttgttgaatt gatcccttta ccattatgta atggccttgn ctctttttg 468

```

```

<210> 605
<211> 288
<212> DNA
<213> Homo sapien

```

```

<400> 605
ccaattgatt tgatggtaag ggaggggatcg ttgacctcgt ctgttatgta aaggatgcgt 60
agggatggga gggcgatgag gactaggatg atggcgggca ggatagttca gacggtttct 120
atttctctgag cgtctgagat gttagtatta gttagttttg ttgtgagtgt taggaaaagg 180
gcatacagga ctaggaagca gataaggaaa atgactatga gggcgtgac atgaaagggtg 240
ataagctctt ctatgatagg ggaagtagcg tctttagtag ctacttgc 288

```

```

<210> 606
<211> 572
<212> DNA

```

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(572)

<223> n = A,T,C or G

<400> 606

gaatnaaatg aatgaaatag aaaatataat tgagagcttc aacaacagac tataccaaat	60
ggaggaaaaa atttctgaac ttgaagatag atcttttgaa ataacacaag cagtggcaaa	120
aatgaattaa aaagaataag gaaagcctaa aggatttatg agatatcatt aagcaagcaa	180
atattcatac tatgggcatt ccagatggaa aaaagaaggg taaagggtgag gaaatcatat	240
ttaatgaaat aatagcagaa aatttccgga gtcttggggag agagatgagc atttaggtcc	300
agggagctca aagaacccca aacagattca acccaaacag gtctctctg gagcccaaca	360
tagtcaatt gtaataagta aaagacaaag aattccaana agcattcaag agaaaagagt	420
caagtcataa ataagggaat ctccattagg ctaacagcag atatctcagc agaaaagctta	480
cangccanga gagaatggga tgatatattc aaagtacttg aaagcagggg tnggggaaac	540
cctgctagct aaaaatatta tacccttgca aa	572

<210> 607

<211> 178

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(178)

<223> n = A,T,C or G

<400> 607

ctcggggtaa tctcccagca agaggtcagg tcttggtgt ggcgccagg gtgtcagtga	60
aattggctgc tcccctgacc cagggcacct tcatgctct tcacagcagg actactgtga	120
ccaaggccag acctttcacc tttcaaaaga ctttgactaa aaatgcttta aaaaagca	178

<210> 608

<211> 416

<212> DNA

<213> Homo sapien

<400> 608

cctgtctttg aatggatgaa atagggttaat aaagaacatc actgtttaaa aactagaaca	60
ctgaaaaatt ctaggaaaagc ttattttccc ttatatTTTT atgggtacttt caacacttaa	120
taacactatt tcaattaagt tttctcctag agtttatagt atatcagtac attcctttct	180
gtggatgcaa taatatagaa tcttatccca aatcttactg gcagggtctc ttaaattctt	240
caacggctgt catagtgatt aacccaaaatt agttatgatt tctgcctatc tgtgtgagaa	300
cttacagggg aaattgttct aaacctgagg aacatgaagt aactgtactg cacactccaa	360
atgatgacag tcattttata tcaccttcaa ttacccaaca gcttttaata gtctgg	416

<210> 609

<211> 648

<212> DNA

<213> Homo sapien

<400> 609

ctgatctctc agcagaaact cttcaaacca gaagagagtg ggggccaaata ttcaacattc	60
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```

ttaaagaaaa taattttcaa cccagaattt catatccagc caaactaacc ttcacaagtg      120
aaggagaaat aaaatccttt acagacaagc aaatgctgag agattttatc accaccaggc      180
ctaccctaaa agagttcctg aaggaagcac taaacatgga aaggaacaac cagtaccatc      240
gaggctagga agaaaccgca tcaactaagg agcaaaaataa ccagctaaca tcataatgac      300
aggatcagat tcacacataa cgatattaac tttaaagtga aatggactaa atgctccaat      360
taaaagacac agactggcaa attggataaa gactaaagaa cactcagggt gatgtattca      420
ggaaacccat ctcaccgtgc agagacacac atagggtcaa aataaagggc tggaggaaga      480
tctaccaagc aaatggaaaa caaaaaaagg caggggttgc aatcctagtc tctgataaaa      540
cagactttta accaacaag atcagaagag acaagaagg ccattacata atggtaaagg      600
gatcaattca acaagaagag ctaactatcc taaatatata ttgcaccc      648

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<210> 610

<211> 310

<212> DNA

<213> Homo sapien

<400> 610

```

ccagctcttc tctgtcacat tectatttct gacttctgcc tggctttcag tttctgcccc      60
accttggttt tttccagct tgaacctaat agaactccag agtttggggg gaggcccagc      120
cctttgtttt ctgctcttga agcatattca cacataaaaa gttgtattct cttacacaaa      180
ctgttttgag gctcttaccg tagtcgaagg tatcttagat ctctcttagt gatctcatta      240
agaatatcgg aaagtgtata accctcttca acaatctgaa acaaagatca gatccttaag      300
agctgagcag                                     310

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<210> 611

<211> 254

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(254)

<223> n = A,T,C or G

<400> 611

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ctgtttttac atctaaagca atagactaga actgaattnt cttctacata gtaaaatcac      60
aattgtggaa ttacaggaat tctgggtgata ttaagggtgaa acaacaaaac acaaaaggcc      120
ctattttaac agttgatgtg acagtaagtt ttaatagaac ctgtaacttc attttggaag      180
tgcttctcca ccaaataagg cctttttccc ctatttaagg agccagatgg attgaaagat      240
gtggaaatag gcag                                     254

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<210> 612

<211> 225

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(225)

<223> n = A,T,C or G

<400> 612

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ctgactatat catgtcacca tcatagccaa tacaacattn ttgccatact tcttaaaaac      60
cttttggcat acactgatca tgctacttat cagcactttc taacatcctg accaaacaga      120
caccacaccc tcttatagag tacactgtga gagaataaca tggacttgat atggcatcac      180

```

acttgttttta aagcaaaaaa aaaagaaaaa gaaaagaaaa aaaaa

225

<210> 613
 <211> 471
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(471)
 <223> n = A,T,C or G

<400> 613
 ccacagact tcttgggtgc ctggtatat tcaatgtgaa gtaaaaaata tcccaagtct 60
 tacaccaaaa tagaggctct gacttagaag tatgttttta gctttctttt taaataagac 120
 attctggaag aaaaaaaaaa aaaaaggaaa gaaaatcaag ttgaaacac agttaacact 180
 tattttggca agaaagcaac caaaatctaa aaagcataaa ctatgngtcc aaatgnaaaa 240
 ggnattacag aacaaactgc aagaggggaa aattaaagcc ncaactgaacg aaaaaataca 300
 gtatgtctaa cattttggaa ttgnaattta aaccctaagg gcaaaaagctg aaaaatcatg 360
 cttanacctn gngcngacc acnctaagg cgaattccan cacactggcg gncgttacta 420
 gtggatccna nctcgggtacc aagcttggcg taatcctnng catagctgtt t 471

<210> 614
 <211> 421
 <212> DNA
 <213> Homo sapien

<400> 614
 gttatttttt agaatggctc tcccatcttg agtatgtgtg atgtttcttc atgtatgaat 60
 gaagcatata catctttgtc agaagtatcc cagaagcaat tctgtactct cctcattatg 120
 ttctattggg tgggccatgg tttttgattt gtctcattac tgatgatggg tacttttatt 180
 atttgataaa ggttgatat aacttatcta ttatggcata atacattagc taaaaccttg 240
 gcggtgtaaa acagcagata cttacgtttc tcataggaat ggctctattg agtacctctg 300
 tctcaaggct tctcaagagt ttgtagctac cttgttggtc ggggttgcg tctgacctaa 360
 aggcttagtt aggggggtgt agaaatcttc catatgttct ttgctacgtg gacctcacag 420
 g 421

<210> 615
 <211> 242
 <212> DNA
 <213> Homo sapien

<400> 615
 cctcctatrtt attctagcca cctctagcct agccgtttac tcaatcctct gatcaggatg 60
 agcatcaaac tcaaaactac ccttgatcgg cgcactgcga gcagtagccc aaacaatctc 120
 atatgaagtc accctagcca tcattctact atcaacatta ctaataagtg gctcctttta 180
 cctctccacc cttatcacaa cacaagaaca cctctgatta ctctgccc catgacctt 240
 gg 242

<210> 616
 <211> 392
 <212> DNA
 <213> Homo sapien

<220>

200

<221> misc_feature
 <222> (1)...(392)
 <223> n = A,T,C or G

<400> 616

cctaatttgt agattgtgaa agcagctttt agcttaactt cttttaagaa ccaattataa	60
taccatgttt tttttttnt tcttaaactt ntgtgttcag cttgngaatt ttacgtgcc	120
gtaaagtngg gatgttgaat nggcccttnt ttgtttctggc agngagtcaa gngtccanca	180
ttttttcata agngtttttt aaaatngttc tccancattt tatggctcct ccttcccatg	240
tctcaaacc cagcaaaagc gtanaggcan aattanagga cccnccccgg cggccgntaa	300
gggcnaattc cagcncactg gcggccggtta ctagnnggat cnagctcggg nccaagctng	360
gcgtaatcat ggncatagct gtttctctgtg an	392

<210> 617
 <211> 215
 <212> DNA
 <213> Homo sapien

<400> 617

cctactatgg gtgttaaatt ttttactctc tctacaaggt tttttcctag tgtccaaaga	60
gctgttcttc tttggactac cagttaaatt tacaagggga tttagaggtt tctgtgggca	120
aatttaaagt tgaactaaga ttctatcttg gacaaccagc tatcaccagg ctcggtaggt	180
ttgtcgctc tacctataaa tcttcccact atttt	215

<210> 618
 <211> 433
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(433)
 <223> n = A,T,C or G

<400> 618

cttttgntg cctgttttgt ggactggctg gctctgttag aactctgtcc aaaaagtgca	60
tggaatataa cttgtaaagc tccccacaat tgacaatata tatgcatgtg tttaaaccaa	120
atccagaaaag cttaaacaat agagctgcat aatagtattt attaaagaat cacaactgta	180
aacatgagaa taacttaagg attctagttt agttttttgt aattgcaaat tatatttttg	240
ctgctgatat attagaataa tttttaaatg tcatcttgaa atagaaatat gtattttaag	300
cactcacgca aaggtaaagt aacacgtttt aaatgtgtgt gttgctaatt ttttccataa	360
gaattgtaaa cattgaactg aacaaattac ccataatgga tttgggtaat gacttatgag	420
caagctggtt tgg	433

<210> 619
 <211> 259
 <212> DNA
 <213> Homo sapien

<400> 619

ctgcagtgtc cctttttata tcatgctagt gttgagacat acttgactaa cttgggaaca	60
gttcgatata ttgacaaccg tcaacttaag aaaatcaaca gcttttggcc ccagcgtcca	120
agtgaacttt tcatggagtg cagaatctca aatggacaaa atactttgtc tttttaaata	180
ctgaaaattt aattattagt actatgactg aaagattctt catggctaaa aagctctgca	240
tcaaactcaa ttcaggagg	259

<210> 620
 <211> 393
 <212> DNA
 <213> Homo sapien

<400> 620
 ccaccaaagc cacacggaga ttctgtcagg cgctgagaca ccacagcctt ttcaatctta 60
 gggaaagaaa tcaagtcata taaattaata tcaacaggta aggtcattga gcaattgtct 120
 ttcaactgtc taagacttta tcacttaaga tcataaacac agaagcaggc cataaaaaata 180
 gcttttctta aggttttagga gaatttgtag gggcacttac ttgataatct gaattttcta 240
 gtcagaagtt taaataccac cttttaaaaa cataaaaattt aatttgtaac aagttattaa 300
 caaagcagta ttgtcgaaag ttttaagctt tctcccaata atttaattac attaattaaa 360
 tttttaccat tctaattggtt acaaagtaac cag 393

<210> 621
 <211> 563
 <212> DNA
 <213> Homo sapien

<400> 621
 ctgacaatga taaaattatc tctatatggg caaacgcgtg ctctttgtcg aagaagaaaag 60
 cttcagcttc atgttccagg tgagttaatt aggcaatgta tgaatgctaa tatctctttc 120
 acatattttg ctttaagatct gtcttaggac tctcgtctgg cccatatggt tttccaaggg 180
 cagaagggcc tctttttgat gagaggcagt tttcagtaac tcttaaagtg ataacagcaa 240
 aggagaggag agagaagagt aagacaaatc gaaacattct tcaattgctt cttggccttt 300
 tggctaagct caagctcaaa acaggtcttc aaggagaaaa tacatcacia agaaaaggat 360
 gttttatttc ttacctgtc ctagaaaaat ttccataaac tctattggct taattctgta 420
 aacttgacca atatcagagt gcttcctacc aaggagggtg gctgatgagc gtgaccatgg 480
 tacatcctag aagaatgtgt gatgaagaag ctttcaccgt gtaaaagagt tgaaaattat 540
 tcaaggagac attatggtct tgg 563

<210> 622
 <211> 505
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)... (505)
 <223> n = A,T,C or G

<400> 622
 tcttaagtgt gtttaataga taaagtaaac tttcctagtc aagggttaga tttttattat 60
 ctcttggtgt cgcactttct acttttcaac tttgaacttc aaaaaaacat tactttgctt 120
 atcctttgta ctttgatcag gttgtttaga attgtagatc aaaccattct ttgatcattt 180
 tattgtttta atgnttagtt ccatttataa tttttatagc caactctcgg ttattttctgt 240
 cttttgagat tgcaattcag aagctgtatg tcgaagtaat ttatgagttg acttttatac 300
 ttaggcttct ttaaatacta atagtcaaga attctagagc atctaataaa aaattaactt 360
 tcagatcatt gggaaatctgt cctcatttaa atatgtgtaa atgcatttcc acagcaaatt 420
 gcttcatgcc ctttgnctat aaggaaatta ttccttgtag ctaatacatt tttcattttg 480
 cagnccaaat cttttttgag aaagg 505

<210> 623
 <211> 489

<212> DNA

<213> Homo sapien

<400> 623

cctactatgg	gtgttaaatt	ttttactctc	tctacaaggt	tttttcctag	tgtccaaaga	60
gctgttcctc	tttggactaa	cagttaaatt	tacaagggga	tttagggggg	tctgtggggg	120
aatttaaagt	tgaactaaga	ttctatcttg	gacaaccagc	tatcaccagg	ctcggtaggt	180
ttgtcgcttc	tacctataaa	tcttccact	atcttgctac	atagacgggt	gtgctctttt	240
agctgttctt	aggtagctcg	tctggtttcg	ggggctcttag	ctttggctct	ccttgcaaag	300
ttatttctag	ttaatcatt	atgcagaagg	tataggggtt	agtccttgct	atattatgct	360
tggttataat	ttttcatctt	tcccttgccg	tactatatct	attgcgccag	gtttcaattt	420
ctatcgctat	actttatttg	ggtaaattgg	ttggctaagg	ttgtctggta	gtaaggtgga	480
gtgggtttg						489

<210> 624

<211> 233

<212> DNA

<213> Homo sapien

<400> 624

gttgggggaac	agctaaatag	gttgttggtg	atttgggttaa	aaaatagtag	ggggatgatg	60
ctaataatta	ggctgtgggt	ggttgtggtg	attcaaatga	tgtgtttttt	ggagagtcac	120
gtcagtggta	gtaatatata	tgttgggacg	attagtttta	gcattggagt	agggttaggt	180
tatgtacgta	gtctaggcca	tatgtgttgg	agattgagac	tagtagggct	agg	233

<210> 625

<211> 459

<212> DNA

<213> Homo sapien

<400> 625

ttcgagaaca	tttttaataa	ataatgtgac	aaaattactt	ttctgattat	tggattttca	60
gtatgcaaaa	ttatggctaa	aaataagggg	cttcttacat	gaacataatg	aaaacattaa	120
tcacatggat	tgttccctta	gtactgcacg	ccttttctat	ggaacttttt	caaattatct	180
aaatgaacaa	gtttggtttt	ggtgaacacc	agcctttttt	tttgtggttc	agttttgttt	240
ggcttttgtc	tccactgggg	tcagacctga	tacttatcta	tctatgaata	aatgtacatt	300
ttttttcttc	aatagcacca	attataaaat	caatgatatt	cataaaatga	caaaaaagga	360
tcatagaaat	ctactagtca	gagggcatca	tttgtcaatt	gaaagcaagt	aatgcctcta	420
ttagagattt	taaggaaatc	ttgtagggtt	cgacattgg			459

<210> 626

<211> 458

<212> DNA

<213> Homo sapien

<400> 626

cctgatgatt	gttttaaaaca	gtagaaaggg	ttcagctaag	aactacagtc	cactctcagc	60
cctgtcatgt	actataggac	aagtcttcat	tcacaacaaa	tggatagcaa	caccaatctc	120
gtaacactgg	gaaaactgca	tacaatatct	agaaggaaca	ctaatacagc	agaatctgca	180
cacaacggag	tcaaagatct	gaggccaaat	cctactacac	tttacgactt	tgagttggtc	240
acttttctga	accttagctt	ctccatcagt	gtaaaactga	tgtaaaataa	tataaagcta	300
tatgaaagct	gatgtgattt	acttgtgaaa	tagtatgtgc	aaaaggactt	tgtaaaatgt	360
aaagcactat	gctggttatt	gtgatatctg	agatatcttt	aaagttgcaa	ttcaattcaa	420
caagcattca	tttagagtca	tgtgcaaggc	actgtgct			458

<210> 627
 <211> 393
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(393)
 <223> n = A,T,C or G

<400> 627
 ccattngaac gcactcagga ggtggtttgt tctggatgca gaaaccagag atctagtttc 60
 tatccacaca gacgggaatg aacagctctc tgtgatgcgc tactcaatag atggtacctt 120
 cctggctgtg ggatctctat acaactttat ttacctctat gtagtctctg aaaatggaag 180
 aaaatatagc agatatggaa ggtgcactgg acattccagc tacatcacac accttgactg 240
 gtccccagac aacaagtata taatgtctaa ctgaggagac tatgaaatat tgtactggga 300
 cattccaaat ggtgcacaa taatcaggaa tcgatcggat tgtaaggaca tttgattgga 360
 ccgacatata cctgtggggt aggaattcca gga 393

<210> 628
 <211> 233
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(233)
 <223> n = A,T,C or G

<400> 628
 ctggatttat aaaatagttg aatgacaaaa gaagnntggt ttgacagtaa aaaaaagaca 60
 ttatggacaa aatatgcaaa atgtgcacaa aaaaaataaa tttgcattag aaaggtgggc 120
 atttgatctc tgagccctgt gccatgtaac attgccatgt tctttcactg ttgtttgaat 180
 gttgtacccc ancccttgac tctggactta aggcaagcta tgactggctt tgg 233

<210> 629
 <211> 450
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(450)
 <223> n = A,T,C or G

<400> 629
 ccnggacaat ntaggcagga gaaggaaata aagggtattc aattaggaaa agaggaagtc 60
 aaattgtccc tgtttgcaga tgacatgatt gtatatctag aaaaccccat tgcctcagcc 120
 caaaatctcc ttaagctgat aagcaactcc agcaaagtcg caggatacaa aatcaatgga 180
 cacaaatcac aaacattctt atacaccaat aacagacaaa cagaggccaa atcacgagtn 240
 gaactctatt ccaattgctt tcaagaaaat taaaatacct agggatccaa cttacaaggg 300
 acatgaagga cctcttcaag gagaaactac aaaccactgc tcaatgaaat aaaagaggat 360
 acaaagaaat ggaagaacat tccatgctca ttggtagctt gatgggggatg gcattgaatc 420
 tataaattac cttgggcagt atggacctca 450

<210> 630
 <211> 486
 <212> DNA
 <213> Homo sapien

<400> 630
 cctactatgg gtgttaaatt ttttactctc tctacaaggt tttttcctag tgtccaaaga 60
 gctgttcctc tttggactaa cagttaaatt tacaagggga ttttagaggt tctgtgggca 120
 aatttaaagt tgaactaaga ttctatcttg gacaaccagc tatcaccagg ctcggtaggt 180
 ttgtgcgctc tacctataaa tcttcccact attttgetac atagacgggt gtgctctttt 240
 agctgttctt aggtagctcg tctggtttcg ggggtcttag ctttggctct ccttgcaaag 300
 ttatttctag ttaattcatt atgcagaagg tataggggtt agtccttgct atattatgct 360
 tgggtataat ttttcatctt tcccttgccg tactatatct attgcgccag gtttcaattt 420
 ctatcgctta tactttattt gggtaaatgg tttggctaag gttgtctggt agtaagggtg 480
 agtggg 486

<210> 631
 <211> 211
 <212> DNA
 <213> Homo sapien

<400> 631
 ttacataaaa tattatacta gcatttacca tctcacttct aggaatacta gtatategct 60
 cacacctcat atcttcctta ctatgcctag aaggaataat actatcactg ttcattatag 120
 ctactctcat aacctcaac acccactccc tcttagccaa tattgtgcct attgccatac 180
 tagtctttgc cgctgcgat gcagcggtag g 211

<210> 632
 <211> 293
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (293)
 <223> n = A,T,C or G

<400> 632
 cagcgcaagt aggtctacaa gacgtactt cccctatcat agaagagctt atcacctttc 60
 atgatcacgc cctcatagtc attttccctt atctgcttcc tagtcttgta tgcccttttc 120
 ctaacactca caacaaaact aactaatact aacatctcag acgctcagga aatagaaacc 180
 gtctgaacta ngtgcccgc catcatccta gtctcatcg cctcccate cctacgcate 240
 ctttacataa cagacgaggt cnaagatccc tcccttacca tcaaataat tgg 293

<210> 633
 <211> 263
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (263)
 <223> n = A,T,C or G

<400> 633

nggtctgcag	tgtccctttt	tatatcatgc	tagtggtgag	acatacttga	ctaacttggg	60
aacagttcga	tatattgaca	accgtcaact	taagaaaatc	aacagctttt	ggccccagcg	120
tccaagtga	cttttcatgg	agtgcagaat	ctcaaataga	caaaataactt	tgtcttttta	180
aatactgaaa	attnaattat	tagtactatg	actgaaagat	tcttcatggc	taaaaagctc	240
tgcatcaaac	tcaattcagg	agg				263

<210> 634
 <211> 491
 <212> DNA
 <213> Homo sapien

<400> 634						
cctactatgg	gtgttaaatt	ttttactctc	tctacaaggt	tttttcctag	tgtccaaaga	60
gctgttcctc	tttggactaa	cagttaaatt	tgcaagggga	tttagagggt	tctgtgggca	120
aattttaaagt	tgaactaaga	ttctatcttg	gacaaccagc	tatcaccagg	ctcggtaggt	180
ttgtcgcttc	tacctataaa	tcttccact	atcttgctac	atagacgggt	gtgctctttt	240
agctgttctt	aggtagctcg	tctgggttcg	ggggctcttag	ctttggctct	ccttgcaaag	300
ttatttctag	ttaattcatt	atgcagaagg	tataggggtt	agtccttgct	atattatgct	360
tggttataat	ttttcatctt	tcccttgccg	tactatatct	attgcgccag	gtttcaattt	420
ctatcgccct	tactttatct	gggtaaatgg	tttggctaaag	gttgtctggt	agtaagggtg	480
agtgggtttg	g					491

<210> 635
 <211> 270
 <212> DNA
 <213> Homo sapien

<400> 635						
ccaattgatt	tgatggtaag	ggagggatcg	ttgacctcgt	ctgttatgta	aaggatgcgt	60
agggatggga	gggcgatgag	gactaggatg	atggcgggca	ggatagttca	gacggtttct	120
atttcttgag	cgtctgagat	gttagtatta	gttagttttg	ttgtgagtgt	taggaaaagg	180
gcatacagga	ctaggaagca	gataaggaaa	atgactatga	gggcgtgatc	atgaaagggtg	240
ataagctctt	ctatgatagg	ggaagttagcg				270

<210> 636
 <211> 383
 <212> DNA
 <213> Homo sapien

<400> 636						
cctactatgg	gtgttaaatt	ttttactctc	tctacaaggt	tttttcctag	tgtccaaaga	60
gctgttcctc	tttggactaa	cagttaaatt	tacaagggga	tttagagggt	tctgtgggca	120
aattttaaagt	tgaactaaga	ttctatcttg	gacaaccagc	tatcaccagg	ctcggtaggt	180
ttgtcgcttc	tacctataaa	tcttccact	atcttgctac	atagacgggt	gtgctctttt	240
agctgttctt	aggtagctcg	tctgggttcg	ggggctcttag	ctttggctct	ccttgcaaag	300
ttatttctag	ttaattcatt	atgcagaagg	tataggggtt	agtccttgct	atattatgct	360
tggttataat	ttttcatctt	tcc				383

<210> 637
 <211> 537
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature

<222> (1)...(537)

<223> n = A,T,C or G

<400> 637

ttttaatcct	ggggtatata	ggcagnactt	taaattgcaa	agtcttcggg	gcctatcttc	60
ctctacattt	ttgtaattaa	ctctgggggc	ttacttggc	tggtgtaact	gaattgaag	120
gagctgggtc	ttcttttttc	ccaattatct	tcatatgaaa	gcacctacaa	ttagcctggt	180
agtcctatcc	agatacatca	aatatcagtg	aatgctttac	tattcgacaa	tttaagcacc	240
tttgttttac	ataaaattag	agtatgaaaa	ccagtgttca	atctttttatc	ttgttgagct	300
tgtaaaatgc	cagcaattta	aaactaggac	ttttcccccc	ataagccaag	gaggtagaat	360
tactaataca	aggggttaaag	aaggtagatt	ttgttttcaa	tatttgggta	atattagaaa	420
gattcttccc	acagggaaga	actagcaagt	gtcccaattt	tttccaaacg	ttggggaggg	480
gaaaattcac	tgtatcatga	aaccctaagg	gittgngtgc	acttctgct	ttttaagg	537

<210> 638

<211> 445

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(445)

<223> n = A,T,C or G

<400> 638

ccagcagaac	acagnagtga	tttggtcccc	tttggtcccc	agtggggtat	ctatccttgt	60
gcagggcaca	agcctacatg	gtggctctgg	tcatatcatt	agaaaataga	cagaaatggg	120
ctgcacacca	gaatgaatga	attgaattga	aaggaggagg	tgatgggtga	aaaaaaaaa	180
agtcaattca	tttagactgg	tagaaccaga	accactgtgt	agtacatcca	aacgggttaa	240
attccctgga	agatgtttca	taatcctatc	atgggtgttt	tttatggaaa	tctattttta	300
aaattttatg	taatactgca	cagtcgtgtt	gcctgatgcc	ttgtacgtag	tagcaactca	360
gtaaatactt	tttgaatgaa	ctagtatagt	attttaatta	gctagtcttc	gtgtactggg	420
acaaaagaac	agtgctcatc	tacag				445

<210> 639

<211> 584

<212> DNA

<213> Homo sapien

<400> 639

gcttgagtat	tctatagtgt	cacctaaata	gcttggcgta	atcatgggtca	tagctgtttc	60
ctgtgtgaaa	ttgttatccg	ctcacaattc	cacacaacat	acgagccgga	agcataaagt	120
gtaaagcctg	gggtgcctaa	tgagtgaagt	aactcacatt	aattgcgttg	cgctcactgc	180
ccgctttcca	gtcgggaaac	ctgtcgtgcc	agctgcatta	atgaatcggc	caacgcgcgg	240
ggagaggcgg	tttgcgattt	gggcgctctt	ccgcttcttc	gctcactgac	tcgctgcgct	300
cggctgctcg	gctgcggcga	gcggtatcag	ctcactcaaa	ggcggttaata	cgggttatcca	360
cagaatcagg	ggataacgca	ggaaagaaca	tgtgagcaaa	aggccagcaa	aaggccagga	420
accgtaaaaa	ggcgcggttg	ctggcggttt	tccataggct	ccgccccctt	gacgagcatc	480
acaaaaatcg	acgctcaagt	caagaggtgg	cgaaaccgga	caggactata	aagataccag	540
gcgtttcccc	ctggaagctc	cctcgtgcgc	tctcctgttc	cgac		584

<210> 640

<211> 404

<212> DNA

<213> Homo sapien

<400> 640
 ccataggaac gcaactcaggo aggtgggttg ttctggatgc agaaaccaga gatctagttt 60
 ctatccacac agacgggaat gaacagctct ctgtgatgcg ctactcaata gatggtaacct 120
 tcctggctgt aggatctcat gacaacttta ttacctcta ttagtctct gaaaatggaa 180
 gaaaatatag gagatatgga aggtgcactg gacattccag ctacatcaca caccttgact 240
 ggtccccaga caacaagtat ataatgtcta actcgggaga ctatgaaata ttgtactggg 300
 acattccaaa tggctgcaaa ctaatcagga atcgatcgga ttgtaaggac attgattgga 360
 cgacatatac ctgtgtgcta ggatttcaag tatttgggtg ctgg 404

<210> 641
 <211> 138
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(138)
 <223> n = A,T,C or G

<400> 641
 ctgtgacagg aacattacct gaagtgcagg gtgggttacct gcacaaagtc ccatttccaa 60
 aaatttctgt gtaattcacc agaaattttg gatggaataa ttagaaaaaa aaaaagaggt 120
 taaaacntgt aactcaaa 138

<210> 642
 <211> 381
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(381)
 <223> n = A,T,C or G

<400> 642
 ctgtagggtg aattttttacc cagaaaagat aggccttaga agcctcattt cttttctcca 60
 tggaaaagga cagccctctg ctgcagcgtt caacttgtgt gtttactgac agagtgaact 120
 acagaaatag cttttcttcc taaaggggat tgttctacat ttggaagtta ttttttaata 180
 aaattgaatt atgttgtgta ttgtgcttcc taataggaaa tgcattattg gactgttttt 240
 gtaacatcct gtttattgca aatagctagt atcgttcaaa aactgtataa aatacttttg 300
 tacatattag caatgtctaa tttgtatata cttcagttaa atttccttaa aacttgaaag 360
 gggaccttgt anaaattaaa a 381

<210> 643
 <211> 403
 <212> DNA
 <213> Homo sapien

<400> 643
 ccttcctaaa aaatagtggg gagctggagg ctacttccgc cttcttagcg tctggtcaga 60
 gagctgatgg atatcccatt tgggtcccgac aagatgacat agatttgcaa aaagatgatg 120
 aggataccag agaggcattg gtcaaaaaat ttgggtgctca gaatgtagct cggaggattg 180
 aatttcgaaa gaaataattg gcaagataat gagaaaagaa aaaagtcag gtagggtgagg 240
 tgggttaaaaa aaattgtgac caatgaactt tagagagttc ttgcattgga actggcactt 300

```

atctttctgac catcgctgct gttgctctgt gagtcctaga tttttgtagc caagcagagt 360
tgtagagggg gataaaaaga aaagaaattg gatgtattta cag 403

```

```

<210> 644
<211> 688
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(688)
<223> n = A,T,C or G

```

```

<400> 644
cctatttatt tgttttggcc ctggatcttt cctaatacaca attatatttc tttatttttg 60
cctttgagca gtttcattta tctttgtggg caggggaagat taaatatgaa attcagtcca 120
gtcattttgc tactggttag ctttagtttg aggcaagtaa aaatttttga ttaaaattag 180
tttcttaaaa ttatgccctt gctttaccaaa ataatacaat tggctaaaaa ataagggtat 240
gtaactttgc attttgaaga acaaaaccaat aatttttcat gagccctact cgatcttctt 300
taaagaagac ctctctaaga gacaattagg gatgagtttg attaatggga aatagctcta 360
ggttagatta ttttaaattc catacaccaa gtgatttaac cacagtggca gtggcagctt 420
ctgaaccgtc aagtatgaac atcaactaaa aattaaaaga tgcttaataa taaactctta 480
attttcatta agccaatctg taattcagaa gaaaagcata tgtctgccat gggactattg 540
cagtgcgtct ccatacagtg taacacagga gagatatgtt attttatgtg tatgtcttag 600
tttgggatat gtggtagtaa gaacatgtca agagtgcctt tcttcaaacc tgnacagctca 660
actgangaaa gacaggtact tccattgc 688

```

```

<210> 645
<211> 484
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(484)
<223> n = A,T,C or G

```

```

<400> 645
ccaaatgtgt ctccagccca cacttccagg tggcagagcg agctctctat tactggaata 60
atgaatacat catgagttta atcagtgaca acgcagcgaa gattctgccc atcatgtttc 120
cttccttgta ccgcaactca aagacccatt ggaacaagac aatacatggc ttgatataca 180
acgccctgaa gctcttcatg gagatgaacc aaaagctatt tgatgactgt acacaacagt 240
tcaaagcaga gaaactaaaa gagaagctaa aaatgaaaga acgggaagaa gcatgggtta 300
aaatagaaaa tctagccaaa gccaatcccc aggtactaaa aaagagaata acatgaaaac 360
gcccagggtt acttgaatgt ttttataaga taggaatata tgtcttcacc atgggggggg 420
gtctcggatt tcaactaacgt tgtatatgaa aatgggtgcn ataaaaagta cttttaaact 480
ttgt 484

```

```

<210> 646
<211> 447
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature

```


<222> (1)...(447)

<223> n = A,T,C or G

<400> 646

gggtcgcgtt	gaacaacttg	gttcaagatg	gtgggggcat	ttttagagcg	gcaataattg	60
aaaaaaaaagg	cgaactctgc	cttggagagg	tagatgataa	gaaataaaaa	ggtgtttata	120
actattttgt	attataaagt	gggccttaga	gataggaaga	agaatgatgg	attccttttg	180
gatcaatcag	aaaggaaaca	cgaaagaaaa	gtcaggaagg	tagagagaga	aaaagggagg	240
gaaggagaaa	gaatgggaat	aaaataagga	ggtaagagat	actatttttg	ctgagcaacc	300
agtgtgtttc	aggatgatac	aaagaaaaat	atagaataga	aataagtgca	ggcttggaat	360
cagctacaaa	tcctaaagat	gggggtgtgtg	tggatgtgtg	tgtgtgtgtg	tnacacccat	420
tgtgtgtttg	taaaatgtgt	atgtccc				447

<210> 647

<211> 388

<212> DNA

<213> Homo sapien

<400> 647

gaagggtgata	taaaatgact	gtcatcattt	ggagtgtgca	gtacagttac	ttcatgttcc	60
tcagggttag	aacaatttcc	cctgcaagtt	ctcacacaga	taggcagaaa	tcataactaa	120
ttttggttaa	tcactatggc	agccgttgaa	gaatttaaga	gaacctgcc	gtaagatttg	180
gaataagatt	ctatattatt	gcattccacag	aaaagaatgt	actgatatac	tataaactct	240
aggagaaaaac	ttaattgaaa	tagtgttatt	aagtgttgaa	agtaccataa	aaatataagg	300
gaaaataagc	tttcctagaa	tttttcagtg	ttctagtttt	taaacagtga	tgttttttat	360
taacctattt	catccattca	aagacagg				388

<210> 648

<211> 632

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(632)

<223> n = A,T,C or G

<400> 648

cctggctggg	cntttgacct	gcgnttttaa	atnactcaca	gaggggtggga	caggaggaag	60
agtgaaggaa	aaggtcaaac	ctgttttaag	ggcaacctgc	ctttgttctg	aattggtctt	120
aagaacatta	ccagctccag	gtttaaattg	ttcagtttca	tgcagttcca	atagctgac	180
attgttgaga	tgaggacaaa	atcctttgtc	ctcactagtt	tgttttacat	tttgaaaag	240
tattattttt	gtccaagtgc	ttatcaacta	aaccttggtg	taggtaagaa	tggaaatttat	300
taagrgaatc	agtgtgacct	ttcttgatcat	aagattatct	taaagctgaa	gccaaaatat	360
gcttcaaaaag	aagaggactt	tattgttcat	tgtagttcat	acattcaaag	catctgaact	420
gtagttttcta	tagcaagcca	attacatcca	taagtggaga	aggaaataga	tagatgtcaa	480
agnatgattg	gtggagggag	caagggttgaa	gataatctgg	ggttgaaatt	ttctagttnt	540
cattccgtac	attttttagtt	agacatcaga	tttgaaatat	taatgttacc	tcctcaatgg	600
ggtgggtatca	gacctgccc	ggcggncgnn	tc			632

<210> 649

<211> 300

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(300)
 <223> n = A,T,C or G

<400> 649

nggtgaagat	agaanaaata	taagcgaaat	tggataaaat	agcactgaaa	aatgaggaa	60
attattggtg	accaatttat	tttaaaagcc	catcaattta	atttctggtg	gtgcagaagt	120
tagaaggtaa	agcttgagaa	gatgagggtg	tttacgtaga	ccagaaccaa	tttagaagaa	180
tacttgaagc	tagaaggga	agttgggtta	aaatcacatc	aaaaagctac	taaaaggact	240
ggtgtaattt	aaaaaaaact	aaggcagaag	gctttggaag	agttagaaga	atttgggaag	300

<210> 650
 <211> 498
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(498)
 <223> n = A,T,C or G

<400> 650

ngtntgnta	aacagaagg	tacaangccc	ttctggcttt	aagcagtcac	aggaatgtga	60
cagacattcc	tcttagggag	cgcctcctcc	taggggttcc	tcattctgtc	cacactgagt	120
ggatgtaatg	ctattttaat	cctgctgtgg	cccccaatac	tagtacttgt	ccataccttc	180
ttgcattttt	agcgtctgct	ctgtgggggt	gttaggcctc	ggcactccca	ggaactagtg	240
ctaaagctgc	atctntctct	ccccctctagg	gatcgataaa	gtttcactgc	agaaagtctc	300
cactgcggta	tgctgacatc	tgccctgaac	cttcacccta	cagcattaca	ggctttaatc	360
agattctgct	ggaaagacac	aggetgatcc	acgtgacctc	ttctgccttc	actgggctgg	420
ggtgatcctt	ggtgcctttg	tttccacaag	gccttttctc	gccccctgcc	ttgccaaaga	480
catttaatac	gcacacag					498

<210> 651
 <211> 654
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(654)
 <223> n = A,T,C or G

<400> 651

ctgagggtcc	ccagggtttc	aaagctctca	ggacgagaaa	gtagggtcca	agataaggag	60
cctaaagggc	ttttttcttt	ctgtgtattc	cttcttgccc	tccaacatgg	gtacagtcac	120
aagagcatgt	aacagagaag	aaggactana	cctaccattt	tctggataaa	gaattggaaa	180
gaggatccac	aggtaaccaa	aaagtaccag	ggaaatggca	gagaaggaaa	acctcaggag	240
accaacctca	taagtggat	ttattagncc	ctgggctcaa	atccaaattg	tacatgaata	300
tgtctgggtc	tagatagggt	accgaagact	ttgaaagtga	attttggtat	atcattgccc	360
agattccaga	ctggntattg	tgtgacacaa	catacaggat	atatctgaat	agtgtctaga	420
agagtttgaa	aatgcaaattg	atattaaaat	aaagatgaaa	aagagaaaagc	tggtcagaac	480
ttgtggacat	aacctttctg	gatctgtngc	ctgattaaaa	aatagttgat	attctcgaat	540
gaattaaaac	aagatttaga	gactgagcat	ggtagctnat	tcttgtaate	caacnctttg	600
ggagggcaag	gcaanagaat	tgtttgcggc	caggagtttt	gagaccagct	tggg	654

```

agctatcata aaattcactt tectgaagac atttactctc attcacttcc aaactccaaa      180
cctttttctg gtagcaccac ttttgTTTTT aatagaaaga tgagttcata tctgtacatc      240
tctccaaagc tctaaggaat gagaaaagga tcttagtata ttgaaattac tgatgtttaa      300
tacctctgcc ttttacttaa aagccattta atatttttaa agtcaaaaact tgacatacag      360
gtatttataa ggaatctcca tgactctgaa ggaatgaaat tgatgtaggt agctttggct      420
atgtaaagac atagtagagg acaattactt aaagaagagt tttcttttga ggatttgtag      480
atttgactaa gcag                                         494

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<210> 656

<211> 477

<212> DNA

<213> Homo sapien

<400> 656

```

cgcgttactg tacatattgc tagcaggaga caactggaaa tactaaacaa atactggaat      60
tcacattaca gacagacgaa accaacatgg atgccacaca taacttcctt tgtagtttca      120
cagagggccr atttgTggtt gctcaggtgg ggctacacat tgcttgCaga aatggcctga      180
tcatagctct atgaaacaat gaattcggaa tgaaatctta ccatgacacc tctctgtagg      240
aaagaaatgt tgcttcacgt gtgctaagtt gagataataa tatttcacat atttatatac      300
agagaatcac tctcaaattt aacccaagat aagcaatagg atttgggggt gacttgtaga      360
catttctaac aacacttttc ttttttctag aggtcactct caaacactga tatatcacta      420
tagtttgagt gtagggattc agtaatcaaa ggttgTtatt gcaaaagagc caggcag      477

```

<210> 657

<211> 576

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(576)

<223> n = A,T,C or G

<400> 657

```

cctctacctg tanatcacta tttttctaaa gacaatttgg tgTTTTgaag ataaatgtca      60
ttagtctatg ataatagcat cataggacaa ttagccattt tagacttgac catattttct      120
cttttttagca tatagccatc ttgatattta ggtgggagac tactccaatg gagcaacagt      180
ttcattttac atgattggat ttagaaattt acaaatTTta aactcataag aattctaaat      240
aatttgaaaa tggaaacatt tgacccacag tctagcagca taaatacatt tataaaatac      300
ttcattgttg atcttaggtc attgatttaa aacagaattt ggtgactatg ggcagggtgga      360
ggggggccagt gaggaaggta taaaagagaa atctttatga attgtgttca gattgatttt      420
gtataaacat aatatattca tggttgatc tcttatttat aatacccaac taacatgaag      480
gtggtccaag ggaaggatca atatttttaa taacatatTT gcttaaaata tcatacagtg      540
gctgcttcac aaaaaatctt ataaactttt attacc                                         576

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<210> 658

<211> 344

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(344)

<223> n = A,T,C or G

<210> 652
 <211> 293
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(293)
 <223> n = A,T,C or G

<400> 652
 ngctctgttgc actgaggtga ctaaggatac attttgagga agtagctcca agaacatttc 60
 cattttcact gtgccttcac atacatctaa tggaaatgaa cagcaccctt catccatcca 120
 cggaagcga: taagaaaagg gtgggatgga aaaattaacc caacaatatt agatcaatac 180
 gtagtattta agngtccata atgtgccagg ctgaagatgc acgggaaaac cacactagcc 240
 ggtctgtcaa gggcttgaga ataccataaa caagaaaaca gacgaaccaa ttt 293

<210> 653
 <211> 294
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(294)
 <223> n = A,T,C or G

<400> 653
 ngtcaccac tgcagcccta catacagttg aaaaaaaatt ccattctgtt aacatttggt 60
 ttataagttt tcaagcaata cacaaaaaac cctctcgcac ttcttgtaaa gaacaaaaaa 120
 gatacacaac agttaagcgt aaagatcaca ggcaatagca ttcaaactg gatgtgggta 180
 gagaaaggag tacctggcat gagtacctgc ttagtttgac tgaatccttg atttttaatt 240
 tggttttca tgggcccgtc acaacaccaa cgctgtgtga ggtatggtag tcag 294

<210> 654
 <211> 250
 <212> DNA
 <213> Homo sapien

<400> 654
 ctgtccttga acaagtatca atgtgtttat gaaaggaaga tctaaatcag acaggagttg 60
 gtctacatag tagtaatcca ttgttggaat ggaacccttg ctatagtagt gacaaagtga 120
 aaggaaattt aggaggcata ggccatttca ggcagcataa gtaatctcct gtcctttggc 180
 agaagctcct ttagattggg atagattcca aataaagaat ctagaaatag gagaagattt 240
 aattatgagg 250

<210> 655
 <211> 494
 <212> DNA
 <213> Homo sapien

<400> 655
 ccattataat tttataacac cattaccctt taaattctac cgattataag cagcgtaaaa 60
 gtaactatat aaagcaaaca tcgcaaagga actctgcagg agctcttaat tcctttatgt 120

213

<400> 658
 cctgaaaaga aagntgctct tatggactct tgcattgttaa gactatgtct tcacatcatg 60
 gtgcaaataca catgtaccca atgactccgg ctttgacaca acaccttacc atcatcatgc 120
 catgatggct tccacaaagc attaaacctg gtaaccagag attactgggtg gctccagcgt 180
 tgtagatgt tcatgaaatg tgaccacctc tcaatcacct ttgagggcta aagagtagca 240
 catcaaaagg actccaaaat cccataccca actcttaaga gatttgtcct ggtacttcag 300
 aaagaatttt catgagtgtt ctttaattggc tggaaaagca ccag 344

<210> 659
 <211> 230
 <212> DNA
 <213> Homo sapien

<400> 659
 ctgctttccc tgctaaacag ttccagagca aaagcagcaa aaagaaaata tgggagggat 60
 atgggcaacg tatactcgaa cgtacgcaga gaagagagta cggtttagctc taatatttct 120
 cattgaactt ggtggtatgt gccttccttg catataagggc catagtgtct ttttgggagc 180
 gctagaatat ccatccactt gacagtgaac acaaaatagg ctgtttccag 230

<210> 660
 <211> 80
 <212> DNA
 <213> Homo sapien

<400> 660
 ctggctcctg ttaaaactga tcaccacttt ggagagatcg actggaggct cctgggtgtt 60
 ctgagggggc tgggggacag 80

<210> 661
 <211> 535
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(535)
 <223> n = A,T,C or G

<400> 661
 ctgaaccata tctgattaac tctttggctc ctgttattgg aacaaaaccg acgctatgcc 60
 tgcagccgcc agactgcaac caaaaacaca gtttgggggc agaagacatt aaaaatcaca 120
 ataaaatagg atgaatgttc taagtcaagc aactgaatca aggcaccttt tttttcaca 180
 agcaaaaagt tgtttaacaa tattccagaa tagtagatac ttcaaaaacc agattacagt 240
 atatatcatt ttgctgcaca ttttagtcta tttctgtat acatagtcac acattcttta 300
 cctctccca acttatacat gctttatccc cccagtcatg tgctatgtag gtataaaaaa 360
 ataaagtgtg atctaaacaa gtgattttaa aaaaaaact aacgaatgcc ncnatnataa 420
 cnetgaactt gtttccctnt tgaaggacat tggaaatgtt accgaggttn ntttacctng 480
 gccgcaacn cnetangggc naattccagc ncaactggggg ccgttactag gggat 535

<210> 662
 <211> 257
 <212> DNA
 <213> Homo sapien

<400> 662

```

cctgactaaa gcacatatca cactccctac acttccatgt tttctctccc atgtggaccc      60
ctctgatgcac atcaagattc aagcgccgtg tgtagccctt cccacagtc cccacatttgt      120
atggcttttc tacactgtga actttttctt gcacttttaga gaatgaattc tgtacaatgt      180
tttcccatg ctgctcacat ttgagaggtg tttctctgct gtggcgcttc tgatgggtca      240
gacgagttga ggaccag                                     257

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```

<210> 663
<211> 516
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(516)
<223> n = A,T,C or G

```

```

<400> 663
ccaattatag gtattttatt ttttaaagat tagagngttc ttgaagctct ttctatttct      60
ttgtcaatga actaaacatt ggcaaatatg tagggtttcc cacataagaa cattattaac      120
atcaaaaatag aaagctgggtg gtagaaataa tgattgggaa cacagagtct ctactcagcg      180
ttctacttct gccataccat aactttgtga tctcacgaaa tatctctcca tgttctctac      240
cctatgtata gttctgtcat ttttcaataa gagctttttg ctttaattatg aagtactagt      300
tactataacc attattttga gcttcatgta aatcaagaac acatggactc cacttgcaaa      360
acattgaaaa tgtagttagg gattgggggc aaaaagcaac attttaaaat gtgtaaagac      420
aatgagtaag caacaaagtg tccaattttt taggcgaaaag ttgcatatgt caggaaaagg      480
caggattaag taatagagaa tttgaatgat aactgg                                     516

```

```

<210> 664
<211> 212
<212> DNA
<213> Homo sapien

```

```

<400> 664
gtccgaggag gttagttgtg gcaataaaaa tgattaagga tactagtata agagatcagg      60
ttcgtccctt agtggtgtgt atggctatca tttgttttga ggtagtttg attagtcatt      120
gttgggtggt aattagtcgg ttggtgatga gatatttga ggtggggatc aatagagggg      180
gaaatagaat gatcagtact gcggcgggta gg                                     212

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```

<210> 665
<211> 408
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(408)
<223> n = A,T,C or G

```

```

<400> 665
atccaggggt ncccggtngc tgcngggaaa cctccagcct tgtttctcaa accactcagc      60
tcctgtgttt tgcgtgact agtactgaat aatacaacca ctcttattta atgttagtat      120
tatttatttg acaactcagt gtctaacagc ttgatatgca ggtccttgca tctacattt      180
ctttaggaag ttacctatt gtaactttaa aaacaggaaa aatatcagtt ggcaaatgca      240
atcttttttt tttttaagct aaaggggggn naacngnaan naaaatnttt ntgangtngg      300
gtctataagc acccttgang ggatntgtta aaagngncat naanggggga ttctcntttt      360

```

gcacaaaaaat ntaannatca atttatanan ctttattttt nactttnt

408

<210> 666
 <211> 635
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(635)
 <223> n = A,T,C or G

<400> 666
 ctgaagnaca agggtcaggc aaaaataaga tcacaatcac caatgaccag aatcgcttga 60
 cacctgaaga aatcgaaagg atgggttaatg atgctgagaa gtttgctgag gaagacaaaa 120
 agctcaagga gcgcattgat actagaaatg agttggaaag ctatgcctat tctctaaaga 180
 atcagattgg agataaagaa aagctgggag gtaaaccttc ctctgaagat aaggagacca 240
 tggaaaaagc tgtagaagaa aagattgaat ggctggaaag ccaccaagat gctgacattg 300
 aagacttcaa agctaagaag auggaactgg aagaaattgt tcaaccaatt atcagcaaac 360
 tctatggaag tgcaggccct cccccaactg gtgaagagga tacagcagaa aaagatgagt 420
 tgtagacact gatctgttag tctgttaata ttgtaaatac tggactcagg aacttttgtt 480
 aggaaaaaat tgaaagaact tancctctga atgtcattgg aatcttcacc tcacagtggg 540
 gttgaaactg ctatagccta agcnggctgt ttactgnttt ncattagcag gtgctcacca 600
 tgtctttggg gtggngggg ggagaaagaa agaan 635

<210> 667
 <211> 388
 <212> DNA
 <213> Homo sapien

<400> 667
 gaaggtgata taaaatgact gtcactatct ggagtgtgca gtacagttac ttcattgttc 60
 tcaggttttag aacaatttcc cctgtaagtt ctcacacaga taggcagaaa tcataactaa 120
 ttttggttaa tcaactatggc agcctgtgaa gaatttaaga gaacctgcca gtaagatttg 180
 gaataagatt ctatattatt gcatccacag aaaagaatgt actgatatac tataaactct 240
 aggagaaaaa ttaattgaaa tagtgatttt aagtgttgaa agtaccataa aaatataagg 300
 gaaaataagc tttcctagaa ttttcagtg ttctagtttt taaacagtga tgttttttat 360
 taacctatct catccattca aagacagg 388

<210> 668
 <211> 498
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(498)
 <223> n = A,T,C or G

<400> 668
 tgatcttaac aaaattcgta gcagtggaa cttgaaatgc atgtggctag atttatgcta 60
 aaatgattct cagtttagcat tttagtaaca cttcaaaggt ttttttttgt ttgttttcta 120
 gacttaataa aagcttagga ttaattagaa gaagcaatct agttaaattt cccatttgta 180
 ttttattttt ttgaatactt ttttcatagt ttttcgttta aaaagattta aaaatcattg 240
 cacttttggtc agaaaaataa taaatatatc ttatgaatgt ttgattccct tcttgctat 300

ttttattcag tagatttttg tttggcatca tgttgaagca ccgaaagata aatgattttt	360
aaaaggctat agagtccaaa ggaatgttct tttacaccaa ttcttccttt aaaaatntct	420
gaggaatttg ttttcgcctt actttttttt ctctctgtcac aatgctaagn ggtatccgag	480
gttnttaata tgagattt	498

<210> 669

<211> 622

<212> DNA

<213> Homo sapien

<400> 669

ccttagccaa agaatgcagt ggagccttcc cctttcaact gcattgtgaa tgaataccaa	60
ttaacagcat aaaaattaat agtcccatat cagatctgga aggggtttct ggggctgtct	120
gatgtcccta tctgttgta gtgaacacaa tagcagaaaa ttctttcttg gtccatctgc	180
tataaagtct tggtaaaaca gcattactat gaagaggatg aactcaccta ccttcagatg	240
gaggaaaagt gaaaaggact taggcttttag tcttccatga cttttcttaa gcactaccta	300
cctgtaataa gctgagtga aaaggatgcc gaagaaaatc tgcacccaga agctgttaga	360
aagcactgca gagaacaggg tatgaagaaa ataaagagtt cttataaac ccttaagatt	420
ctttgttcaa ggtaacctg ccaaaagggc agagtaggtg gcaaagagtt gcttttaatc	480
tagctctaca ctgcattga aaataaaatt tgcccatttt gaatatattg tttataatta	540
aatgtgcttt ttacactgca ggtcaatata aaaactgggt agtaaatttc cagcgagcat	600
ttatgttcat ttgctcacag ca	622

<210> 670

<211> 477

<212> DNA

<213> Homo sapien

<400> 670

ttgggccttc tagatgcagt ctcgagcggc cgccagtgtg atggatatct gcagaattcg	60
cccttgccgc ccgggcaggt gatggatgag gagcaaaaaa ttatatacga tgatgaagat	120
gatatctaca aggctaataa cattgcctat gaagatgttg tcgggggaga agactggaac	180
ccagtagagg agaaaataga gagtcaaacc caggaaaggg tgagagacag caaagagaat	240
atagaaaaaa atgaacaaat caacgatgag atgaaacgct cagggcagct tggcatccag	300
gaagaagatc ttcggaagaa gagtaaagac caactctcag atgatgtctc caaagtaatt	360
gcctatttga aaaggtttag aaatgctgca ggaagtggga ggttacagaa tgggcaaaat	420
ggggaaaggg ccaccaggt ttttgagaaa cctcttgatt ctcatgtctat ttatcag	477

<210> 671

<211> 127

<212> DNA

<213> Homo sapien

<400> 671

gtgtgtgtgt ctacttgggc gtgtttaacg tgtgcgtttg tgtctgcgtg tgcattgtgtc	60
tgtgtgtgag cgtgtatttc agtttgggtt gccggatccc atatgattgc gtgcctgtgt	120
acctgag	127

<210> 672

<211> 400

<212> DNA

<213> Homo sapien

<400> 672

gggtctgcac agctatgtta acagcatcct tataccagga gtaggaggaa agacacgact	60
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217

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ggaaaagcaa ttcaagctgg tcacacagtg taatgcaaaa tatgtggaat gtttcagtgc      120
tcagaaagag tgtaacaaag aaaagaacag aaactcttca gttgtgccat ctgagcgtgc      180
tcgagtgggt cttgcaccat tgcctggaat gaaaggaaca gattacatta atgcttctta      240
tatcatgggc tattatagga gcaatgaatt tattataact cagcatcctc tgccacatac      300
tacgaaagat ttctggcgaa tgatttgga tcataacgca cagatcattg tcatgctgcc      360
agacaaccag agcttggcag aagatgagtt tgtgtactgg      400

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<210> 673
<211> 600
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(600)
<223> n = A,T,C or G

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<400> 673
ctggcggtgc tcattagtga atgtatgaca gcaggatgtg aggggatgcc caggagtcag      60
tgtagcatt gtcacttgag atcactgcta ttaatatcat ccattaatct attagtgagc      120
ttcactatat gcagactggg agataaggag aaaatctgtc acattctctc tagctaatac      180
gatcagctac caattaatga gattctgaat gaaatatcaa tatgtgtttt tctaatttgg      240
acctaggaca gagctgttgc ttgtcataga gaaaaacaat aatgcttaaa catagcacat      300
tataattaaa gcaggtttct cacatacttt tcattttatc ctttggataa ttttgtgagg      360
aacgcaggac accaacttcc ctttcataga tacaatcccc atgctattga tgaaagtgtt      420
tttgaatgaa gccatacaac aaataactga tcaaagtggc attacaccaa aatttcttag      480
taggactcct gcatagaatg tttagataga cgtgaaaagt ttgttcanga ggaccagcaa      540
gagagaaact ggggtctttg ggagggtttc ggtgctacat ttataacctn catcagagtn      600

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<210> 674
<211> 140
<212> DNA
<213> Homo sapien

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<400> 674
ggtgggttgg gttaaatgagt gaggcaggag tccgaggagg ttagttgtgg caataaaaaat      60
gattaaggat actagtataa gagatcaggt tegtcttcta gtgttggtga tggctatcat      120
ttgttttgag gttagtttga

```

```

<210> 675
<211> 245
<212> DNA
<213> Homo sapien

```

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<400> 675
gttgggttgg ttgtgtaaat gagtgaggca ggagtcagag gaggttagtt gtggcaataa      60
aaatgattaa ggatactagt ataagagatc aggttcgtcc tttagtgttg tgtatggcta      120
tcattttgtt tgagggttagt ttgattagtc attgttgggt ggtaattagt cggttgttga      180
tgagatatct ggagggtggg atcaatagag ggggaaatag aatgatcagt actgcggcgg      240
gtagg

```

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<210> 676
<211> 621
<212> DNA
<213> Homo sapien

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<220>
 <221> misc_feature
 <222> (1)...(621)
 <223> n = A,T,C or G

<400> 676
 ctgtccccag ggnaaatagt ngaattcaac taagatctgt taataagatg tcagaataac 60
 taataatttt attaggaaaa aatcatgttt taaatttcaa aatgacactt atttgtcaag 120
 taatatgata ttggaaaatt tttaaagaaaa ataatectac ttataaacta cttttttata 180
 attgttttca gaaaaaaagt ttacagtctt aaggaaaaata ttcagggtcta tcatatgggt 240
 tgacagattt tttaaaagtt attttttggt aggtcttctt ttagaaaaaa attaatctca 300
 agggtttttt gtaccactat aatctctaata acttactcag aattactgtg tatttactta 360
 atttcttatt atgtgcctta ttatgtgctt aagatataat aggttagagt ttaatactaaa 420
 tatcttgaaa gctatatgtt gggcttggtt agcattttgt tttttctttc tctgttttgg 480
 taaggattta aaattttttt cattgcaatt ttaagtgggt ttcaataagt aatagttttt 540
 atcaaatttt tgggtgcttg tgcagagacg gcgtggggaa ggggtgaatgg ttttgggaat 600
 aattcagtgc acacctgggg g 621

<210> 677
 <211> 210
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(210)
 <223> n = A,T,C or G

<400> 677
 ttacataaan atattatcag catttaccat ctccacttcta ggaatactag tatategttc 60
 acacctcata tctccctac tatgcctaga aggaataata ctatcactgt tcattatagc 120
 tactctcata accctcaaca cccactccct cttagccaat atttgtccta ttgccatact 180
 agtctttgdc gcctgcgaag cagcggtagg 210

<210> 678
 <211> 383
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(383)
 <223> n = A,T,C or G

<400> 678
 gtaggagtca ggtagttagg gttaacgagg gtggtaagga tgggggggaat taggggaagtc 60
 aggggttaggg tgggttatagt agtgtncatg gttatttagga aaatgagtag atatttgann 120
 aactgattaa tggttgggnn tgagttnta tatcacagcc anaattntat gatgnaccat 180
 gtanccaaca atgctacagg gatgaatatt atggagaagt antctanttt gaagcttagg 240
 gagagctggg ttgtttgggt tgnnggtcan tgtcagttcc anataataac ttcttgggtc 300
 aggcacatga atattgttgt ggggaanaga ctgataataa aggtggatgc gacaatggat 360
 ttacataat gggggtatna gtt 383

<210> 679

220

<210> 684
 <211> 277
 <212> DNA
 <213> Homo sapien

<400> 684
 tgggtattagg attaggatgt gtgaagtata gtacggatga gaagggtggg gaacagctaa 60
 atagggttgtt gttgatttgg ttaaaaaata gtagggggat gatgctaata attaggctgt 120
 ggggtgggtgt gttgattcaa attatgtgtt ttttggagag tcatgtcagt ggtagtaata 180
 taattgttgg gacgattagt ttttagcattg gagtaggttt aggttatgta cgtagtctag 240
 gccatatgtg ttggagattg agactagtag ggctagg 277

<210> 685
 <211> 457
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(457)
 <223> n = A,T,C or G

<400> 685
 ctgtggcgtn ccctacttct cccaaacctc gcaactccct cccaggacag tcagtgccaa 60
 agaaacaggt cgctgaaaac taaaatgtcc acatccctaa ctggcaaccc acatcaaccc 120
 caaaagggtt aagaatcctc taagatattt cagatgtctt atgaagaaat tcactttaac 180
 acttataact gtaagacttt gcatacatta caacagtcca ttagtgatac aagttgtaaa 240
 atacgtttcc attcctttgg attttgcata tgatgggttt gcacagtcac ctgcaggtag 300
 attgagcaag ctttttgtgt ttgttttttt aaacatgcat tcaactagat atgattcaga 360
 atagattaat actccctttt tctactaca gttagctaaa aaattgccag gcagtcacca 420
 aaacagaatt tgctttaaga ccaaccacac gagtcag 457

<210> 686
 <211> 234
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(234)
 <223> n = A,T,C or G

<400> 686
 ntggatttat aaaatagttg caatgacaaa agaagtatgt tttgacagta aaaaaaagac 60
 attatggaca aaatatgcaa aatgtgcaaa gaaaaaataa atttgcatta gaaagggtggg 120
 catttgatct ctgagccctg tgccatgtaa cattgccatg ttctttcact gttgtttgaa 180
 tgttgtaccc cagcccttga ctctggactt aaggcaagct atgactggct ttgg 234

<210> 687
 <211> 315
 <212> DNA
 <213> Homo sapien

<220>

<211> 371
 <212> DNA
 <213> Homo sapien

<400> 679

aaaatgaaaa	tattgacaaag	agtttcagat	agaaaaagaa	aaaaaagata	agacaagtat	60
tggagaagta	tagaagatag	aaaaatataa	agccaaaaat	tggataaaat	agcactgaaa	120
aaatgaggaa	attattggta	accaatttat	tttaaaagcc	catcaattta	atttctgggtg	180
gtgcagaagt	tagaaggtaa	agcttgagaa	gatgagggtg	tttacgtaga	ccagaaccaa	240
tttagaagaa	tacttgaagc	tagaagggga	agttgggtta	aaatcacatc	aaaaagctac	300
taaaaggact	ggtgtaattt	aaaaaaaact	aaggcagaag	gcttttggaa	gagttagaag	360
aatttggag	g					371

<210> 680
 <211> 176
 <212> DNA
 <213> Homo sapien

<400> 680

cctaggattg	tgggggcaat	gaatgaagcg	aacagatttt	cgttcatttt	ggttctcagg	60
gtttgttata	attttttatt	tttatgggct	ttggtgaggg	aggtaagtgg	tagtttgtgt	120
ttaatatatt	tagttgggtg	atgaggaata	gtgtaaggag	tatgggggta	attatg	176

<210> 681
 <211> 152
 <212> DNA
 <213> Homo sapien

<400> 681

ctggagatgg	atatgagact	agtcaagatg	tgaatgctaa	ttggagagaa	atataatttt	60
aggaagatgc	acattgatgt	ggggttttga	tgtgtctgat	tttgactact	caagctctgt	120
ttacagaaga	aaattgaatg	gcgaggggtg	gg			152

<210> 682
 <211> 141
 <212> DNA
 <213> Homo sapien

<400> 682

ccagtgcctg	cttgccgtgg	tttagtgatt	gggtgttaga	aataaaaact	caggtctatt	60
tcttaccagt	cagtaacaat	ttttagagaa	tgtacttggg	atataatata	tggacttcag	120
gaactttgtt	gggggtggggg	g				141

<210> 683
 <211> 308
 <212> DNA
 <213> Homo sapien

<400> 683

ccagcaatgg	tacagagtga	gggtgttctg	ctaattgactt	cagagaagta	tttaagaaaa	60
acatagaaaa	acgtgtgcgg	agtttgccag	aaatagatgg	cttgagcaaa	gagacagtgt	120
tgagctcatg	gatagccaaa	tatgatgcca	tttacagagg	tgaagaggac	ttgtgcaaac	180
agccaaatag	aatggcccta	agtgcagtgt	ctgaacttat	tctgagcaag	gaacaactct	240
atgaaatgtt	tcagcagatt	ctgggtatca	aaaaactaga	acaccagctc	ctttataatg	300
catgtcag						308

221

<221> misc_feature
 <222> (1)...(315)
 <223> n = A,T,C or G

<400> 687
 nngtctgtga aaaactcttt ggatgattct gccaaaaagg tacttctgga aaaatacaaaa 60
 tatgtggaga attttggctt aattgatggg cgcctcacca tctgtacaat ctctgttttc 120
 tttgccatag tggctttgat ttgggattat atgcacccct ttccagagtc caaacccgtt 180
 ttggctttgn gtgtcatatc ctattttgtg atgatgggga ttctgaccat ttatacctca 240
 tataaggaga agagcatctt tctcgtggcc cacaggaaaag atcctacagg aatggatcct 300
 gatgatattt ggcag 315

<210> 688
 <211> 522
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(522)
 <223> n = A,T,C or G

<400> 688
 ctgaattaga ggaggagaaa agaagccatt nnggagtact ttaattgttt agatgtgaga 60
 ggctgaatgt ttgggttaag atgttagttg tcagaatcat gagaaaagg ttttaagcaag 120
 gggcatttct aattctaaaa ataacaacta ctgttattta ttgagcacta tctttttgtt 180
 gggtaactgtc taaagtactt gatttatttt ttaaaacctt acaaaaaact tacaaggtag 240
 gtactgaaag attcagtaat ttgttcaaag tcacacagca aataagcaac agactctgga 300
 tttgaaccag gcaatcctag agcctgtact gttagtaatt atacttttagc acctgtcaag 360
 aattcctgtt gagtgtcaag aagcaancac caagttagga tttaaagcaa acatgattga 420
 agaatactgt ggtgtggttg acagtagtgc ctaagtctgt tttcagagtg aaaaatgaca 480
 aattagattt taagtatggt ttggagataa tatcaggaca gt 522

<210> 689
 <211> 158
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(158)
 <223> n = A,T,C or G

<400> 689
 tctcaactta ntntnatacc cacacccacc caanaacagg gtttgttagg nattgtttgc 60
 attaataaat taaagctcca tagggctctc tcgtcttggc gtgtcatgcc cgcctcttca 120
 cgggcagggtc aatttcactg gttaaaagta agagacag 158

<210> 690
 <211> 300
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature

<222> (1)...(300)

<223> n = A,T,C or G

<400> 690

tagaactcgt	atTTTTaaac	ttctattctc	tanccTTTTc	cactacatta	tgacacaaga	60
ccctgcagaa	agtcgtcttg	aaaaatcttg	cccaattctc	ccctgtcccc	tccaatctta	120
catcgaatta	tatgcacct	taaaaagtta	tttgagttt	taaaaaactc	tattagccca	180
aattacctga	aataaactcc	tggtctgttc	ccctaattgt	tataaaaaat	tgattgaaaa	240
tattcatttt	aaaaatgaag	ntcttgaatt	tatttaaatt	actgtcttgc	agtgagttgg	300

<210> 691

<211> 305

<212> DNA

<213> Homo sapien

<400> 691

ctgttcagaa	agctcattgg	acctggtttt	gaaaataaaaa	caaagttaaa	accctgggag	60
gagttattgt	gcagtgtgga	gtactcaggc	tttcttataa	agaaaaaaaa	agttatctgg	120
taccaaagtg	tgcaacctac	agacctcag	gtactgcct	gtgacttctc	tgtatgacat	180
cacaaggctg	ccaagtgcct	gtttttctag	aactaggagt	tggtgaggtt	tggttagtgc	240
tgaaccatg	cataggattg	gtttactaaa	ttaaacctt	attacgtacg	tcctccaaaa	300
gacag						305

<210> 692

<211> 582

<212> DNA

<213> Homo sapien

<400> 692

caggaaatgg	ataaccattt	taactgtatt	ttttgcagcc	cgtaccttct	tggaataaca	60
attgtctaac	tttttatTTT	tggtctggct	gttggtggtg	gcaaaaactcc	gtacattgct	120
atTTTgccc	actgcaacac	cttacagatg	tggaagatgt	gaaatttgtc	atcaattatg	180
actaccttaa	ctctcagag	gatttatatt	atcgaattgg	aagaactgct	cgcagtacca	240
aaacaggcac	agcatacact	ttctttacac	ctaataacat	aaagcagggtg	agcgacctta	300
tctctgtgct	tcgtgaagct	aatcaagcaa	ttaatcccaa	gttgettcag	ttggtcgaag	360
acagagggtg	aggtaaggat	gactgatagg	aaatgttggg	agttacgagt	cacatcggtg	420
tctacaaatc	cattttaaag	gtattggagg	gtgagtaaaa	ccttgaatgt	gaaaacttaa	480
gctgaaaaat	tgtaaaaaaca	tttcacgctt	accatgaata	gatctgtttc	tttctgtcca	540
caatgatttg	tgctatagac	ataattgata	aatttgcaat	tg		582

<210> 693

<211> 275

<212> DNA

<213> Homo sapien

<400> 693

ccaattgatt	tgatggtaag	ggagggatcg	ttgacctcgt	ctgttatgta	aaggatgcgt	60
agggatggga	gggcgatgag	gactaggatg	atggcgggca	ggatagtcca	gacgggtttct	120
atTTTctgag	cgtctgagat	gttagtatta	gttagttttg	ttgtgagtgt	taggaaaagg	180
gcatacagga	ctaggaagca	gataaggaaa	atgactatga	gggcgtgata	atgaaagggtg	240
ataagctctt	ctatgatagg	ggaagtagcg	tcttg			275

<210> 694

<211> 397

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(397)

<223> n = A,T,C or G

<400> 694

nggtctgcat	ttttattgcg	atctgcagat	gaactggaaa	atctcatttt	acaacagaaac	60
tgagacagac	gaccaccata	ttcactgagg	tctaaatttg	cagtttccac	taatgacatt	120
ttgatttccc	aacagagata	cttctgggtc	tactgcacag	tcttttaaga	gaaatacttc	180
cattatgcca	cattgtcctt	gatccgtaag	tgatgtgtta	agggtgcttc	aagggaactct	240
gacctctgaa	gtacttgagc	tacttttaga	tgtccagcct	attgcttttt	gttttagtgt	300
gtcaccataa	atatcagggg	cataaaaagg	tatctattct	taattcaagg	ataaaacaga	360
agaagcttgt	ggtataaaac	aatagttcaa	gatccag			397

<210> 695

<211> 609

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(609)

<223> n = A,T,C or G

<400> 695

ctgagcttcc	atltgtcagc	tagcactgng	gtagtcaacc	atgcgaatga	ggctattttg	60
gacctcaga	ttgtccagtg	cctgggctga	taccgnggga	aacgaaattt	tgtggctgcc	120
cacaaaatga	tgaaaaataa	tgatttttta	gaaaaacctc	actgntttgt	tgtgcagcaa	180
taataaactg	aacacaccaat	ccaaaaaact	tataaaagcta	taacaattaa	aacagnataa	240
taatagtncb	gggatacaaa	aatgggtcaaa	ttgaagagga	tacaaagcct	caaagcagtc	300
ctcactcata	ananccttgt	tgtatcacta	aaanggcatt	aaaattgaga	anaaggaana	360
actagtggat	taattaataa	atgagaagta	tccataagga	aaaattaaaa	ttnnattctt	420
gcttcacatt	atgaaaaaat	acaaacaaca	gattgattaa	agacttaaat	gngatcaaca	480
aaatgtttaa	actgtgataa	gaacatttaa	gaaaatagtt	ctatnaccct	gggataaaac	540
atlttcttcc	aaggcattaa	agtgttaaat	gaaaagactg	atncatttat	tcattagaat	600
ttaaattcn						609

<210> 696

<211> 300

<212> DNA

<213> Homo sapien

<400> 696

ctgcaaaaata	agcgtgctaa	attaaattgt	cttaagggtt	ttccacttca	ttttgtgact	60
ttgtgtgggt	cgaatttctc	agtattttaa	ccagtgtggt	gatgtttaaag	tcaaaggctg	120
cagtatgtct	atattcttgc	tgtactcatt	ggtagtttca	gtatatgtaa	tgtgagttta	180
aatagtgaaa	ttgtatctca	tattaacatt	tcaaatgctc	atattgaaaa	tggaaaatag	240
taaacacggg	aattgatttt	attctgggtg	tctataatac	ttcattttta	atgtaaatgg	300

<210> 697

<211> 391

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(391)
 <223> n = A,T,C or G

<400> 697
 nngtcatgtn tgatgnatct gancaggttg ctccacaggt agctctagga gggctggcaa 60
 cttagagggtg gggagcagag aattctctta tccaacatca acatcttggt cagatttgaa 120
 ctcttcaatc tcttgcactc aaagcttggt aagatagtta agcgtgcata agttaacttc 180
 caatttacat actctgctta gaatttgggg gaaaatttag aaatataatt gacaggatta 240
 ttggaaattt gttataatga atgaaacatt ttgtcatata agattcatat ttacttctta 300
 tacatttgat aaagnaaggc atggttggtg ttaatctggt ttatttttgn tccacaagtt 360
 aaataaatca taaaacttga acaaaaaaaaa a 391

<210> 698
 <211> 536
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(536)
 <223> n = A,T,C or G

<400> 698
 ctgagcatatc agcaataaaa ataacataat ttttatgtgt acaatatatta tggaatacgt 60
 tactggaaca gataaataat ttagttaata acatgacaaa gaacagaaat tgtatacact 120
 atacagcata gtaatagaat aatgaatgat taaagttatt aatattaggt agaaaatgaa 180
 gggtatcttt gagagcagaa ctcaaggaag caagcaattt gccttatgag gaaagagtta 240
 cctgtggata aaggagaaac tgaaaaattt acaagtcaag actttttgag caaagacaaa 300
 aatatgacta tgagtcacca attcagtaca gtgaaaaaaaa agttgaagag atatcttgga 360
 agtaaaccat gttgtggaag agcagggttt tgataatcat gggattattc tgaatgaatt 420
 ttaaatgcga taggaatata tgagataatt tcaccagaga ataatatgat catgtttgca 480
 tttcaaagggt gtgtatctgg tgcactgngt agaataaata ggntatgtga gcaagt 536

<210> 699
 <211> 419
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(419)
 <223> n = A,T,C or G

<400> 699
 ngtcaccttg agggcaggtg acaaggacct gacagagccc atgcagggtt ttagatttgg 60
 acacacaaga gttgataact tctcatgaa ctcttgctt gatctaaact catattatgg 120
 gttctgactg tttgagtaat catcttcaag gttaaacctc ttggcagtta cctttttcac 180
 aaagtgcaca gtgggaatcg agaatcgata gggttaattt tggagcagtg gcttatacca 240
 ttcacctctg tttttttgtg attattttcac agataatgag accttaataa caaataggcg 300
 taataaaatt ttcacattga aatgatagaa acatttgatg taataaaaact tgggtggcct 360
 gatattttta ggaattgaaa cctagcaatc ttattggaga gacaagaatt ggtctccag 419

<210> 700
 <211> 336
 <212> DNA
 <213> Homo sapien

<400> 700
 ccacttattg tccttaaaaa tccatactga tacatggaca gfaagtgtgt tttcagatgg 60
 agtaccagca ccgaaaatgg gttgagggag gatgggttgt atgtatgttt ctgcccacta 120
 attttgagca gccatattat gaattaaatc gtcacagcca agtaataacc caagaatggt 180
 atgagtttca tgtgtaatat ctcaaattgga ataagcatga atgctggagt ggaccattat 240
 cctcaaatat tctatgtcac ttctcattta aagactcttg ttatgaacta ttagaaaactt 300
 taggcaaaat caaaagtatt tgcggcaaaa taaagg 336

<210> 701
 <211> 418
 <212> DNA
 <213> Homo sapien

<400> 701
 ccatgtgatg atgttgacaa cccctgaaga gcctcagtc attgttccac gtttaagaac 60
 taggaatacc aggactgatg caattctact gggtcactat cgcttgtcac aagacacaga 120
 caatcagacc aaagtatttg ctgtaataac taagaaaaaa gaagaaaaac cacttgacta 180
 taaatacaga tatttttcgtc gtgtccctgt acaagaagca gatcagagtt ttcattgtggg 240
 gctacagcta tgttccagtg gtcaccagag gttcaacaaa ctcatctgga tacatcattc 300
 ttgtcacatt acttacaat caactgggtga gactgcagtc agtgcttttg agattgacaa 360
 gatgtacacc ccttgtttct tcgccagagt aaggagctac acagctttct cagaaagg 418

<210> 702
 <211> 261
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(261)
 <223> n = A,T,C or G

<400> 702
 gggcctgttg tgggggtggg ggaagcaggg aggggaacag ctaaataggt tgctgttgat 60
 ttggttaaaa aatagtaggg ggatgatgct aataattagg ctgnnggtgg ttgtgttgat 120
 tcaaattatg tgtttttttg agagtcagt cagtggtaga aatataattg ttgggacnat 180
 tagnttttagc attggagtag gtttaggtta tgtacgtagt ctaggccata tgtgttggan 240
 attgagacta gtagggctag g 261

<210> 703
 <211> 261
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(261)
 <223> n = A,T,C or G

<400> 703

```

gggcctgttg tgggggtggg ggaagcaggg aggggaacan ctaaataagg tgcgtgtgat      60
ttgggttaaaa aatagtaggg ggatgatgct aataattagg ctgnggggtgg ttgtgttgat      120
tcaaattatg tgttttttgg agagtcacgt cagtggtagt aatataattg ttgggacnat      180
tagnttttagc attggagtag gtttaggtta tgtacgtagn ctaggccata tgtgttggag      240
attganacta gtagggctag g                                     261

```

```

<210> 704
<211> 381
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(381)
<223> n = A,T,C or G

```

```

<400> 704
ngtntgaatt ctattaaaga tacaagagg agctgggtacc atttcttctg aaactattac      60
aaacaactga aaaggtggaa ttctcctta attcatttta ggaggccagc attatactga      120
taccaaaacc tggcagaggt acaataataa aaggaaaactt caagtcagta tcaactgatga      180
acaccaaactg gaaaatcctc aataaaaatac tggcaaaactg aattcagcag cacatcaaaa      240
agctaatacca ccacaatcaa gtcagettca tccctgcgat gcaagtctgg ttcaacatat      300
gcaaataaat aaatacaatt catcagataa acagagctaa agacaaaatt cacatgattt      360
tctcaataga tgcagaaaag g                                     381

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<210> 705
<211> 477
<212> DNA
<213> Homo sapien

```

```

<400> 705
ctgaacccctc gtggagccat tcatacaggt cccctaattaa ggaacaagtg attatgctac      60
ctttgcacgg ttagggtacc ggggcggtta aacatgtgtc actgggcagg cgggtgcctct      120
aataactgtg atgctagagg tgatgttttt ggtaaacagg cggggtgaaga ttgcccaggt      180
tcccttttact ttttttaacc ttcccttatg agcatgcctg tgttgggttg acagtgaggg      240
taataatgac ttgttggtga ttgtagatat tgggctgtta attgtcagtt cagtgtttta      300
atctgacgca ggcttatgcg gaggagaatg ttttcattgtt acttatacta acattagtgc      360
ttctataggg tgatagattg gtccaatggg gtgtgaggag ttcagttata tgtttgggat      420
tttttaggta gtgggtgttg agcttgaacg ctttcttaat tgggtggctgc ttttagg      477

```

```

<210> 706
<211> 266
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(266)
<223> n = A,T,C or G

```

```

<400> 706
ccatggctag gtttatagat agttgggtgg ttggtgtaaa tgagtgaggc aggagtccga      60
ggaggttagt tgtggcaata aaaatgatta aggatactan tataagagat caggntcgtc      120
ctttagtgtt gtgtatggct atcatttgtt ttgaggntag ttgattagt cattgttggg      180
tggttaattag tcggttggtg atgagatatt tggaggtggg gatcaataga gggggaaata      240

```

gaatgatcag tactgcggcg ggtagg

266

<210> 707

<211> 358

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(358)

<223> n = A,T,C or G

<400> 707

ccatcagaga aatgcaaatc aaaaccacaa tgagatacca tctcacacca gttagaatgg	60
caatcattaa aaagtcagga aacaacaggt gctggagagg atgtggagaa ataggaacac	120
ttttacaccg ntgggtgggac tgtaaactag ttcaaccatt gtggaagtca gtgtggcgat	180
tcctcaagga tctagaacta gaaataccat ttgaccacgc cggccaatat tcaacattct	240
taaaggaaag aattttcaac ccagaatttc atatccagcc aaactaagct tcgttagtga	300
aggagaaata aaatacttta cagacaagca aatactgaga gattttgtca ccaccagg	358

<210> 708

<211> 491

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(491)

<223> n = A,T,C or G

<400> 708

cctactatgg gngttaaatt ttttactctc tctacaaggt tttttctag tgtccaaaga	60
gctgttcttc tttggactaa cagttaaatt tacaagggga tttagagggg tctgtgggca	120
aatttaaaag tgaactaaga ttctatcttg gacaaccagc tatcaccagg ctcggtaggt	180
ttgtcgcttc tacctataaa tcttccactc attttgctac atagacgggt gtgctctttt	240
agctgttctt aggtagctcg tctgggttcg ggggtcttag ctttggtctt ccttgcaaag	300
ttattttctg ttaattcatt atgcagaagg tataggggtt agtccttgct atattatgct	360
tgggtataat ttttcatctt tcccttgagg tactatatct attgcgccag gtttcaattt	420
ctatcgctta tactttattt gggtaaatgg tttggctaag gttgtctggt agtaagggng	480
gagtgggttt g	491

<210> 709

<211> 460

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(460)

<223> n = A,T,C or G

<400> 709

nggttttttt tgtagagcaa ataatttatg caaaatatgt tacaaaaatct gggatgctaa	60
atagttgaca caagtactgt gtttgacatt tagtttcatt tgaattagta atagaatttg	120
ctccttccaa catttacatc ttttttcttt ctgactttat atattttcaa taaaaatttg	180

ctccacagtt	tttaagntca	ttcttcttga	atccgntttt	acatttgctg	ngacaaacct	240
gcataaaaact	agattttata	gatataactt	ctttggaaga	gataaaaaatt	caaaagtttg	300
acattgcttt	cantttattct	tttcttcatt	gttttgattg	gccccgtgta	gattgatgta	360
ttgccaatct	acttttgatg	gcataaatnt	aaaatgacaa	cataaaaaagc	ncttctagtg	420
caacagtaat	tgaaacttgc	agttttccat	taaaaaaaaa			460

<210> 710
 <211> 542
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(542)
 <223> n = A,T,C or G

ctgttacagt	gacaagagat	aaaaagatag	acctgcagaa	aaaacaaaact	caaagaaatg	60
tgttcagatg	taatgttaatt	ggagtgaata	actgtgggaa	aagtggagtt	cttcaggctc	120
ttcttggaag	aaacttaatg	aggcagaaga	aaattcgtga	agatcataga	tcctactatg	180
cgattaacac	tgtttatgta	tatggacaag	agaaataactt	gttggttgc	gatatctcag	240
aatcggaatt	tctaactgaa	gctgaaatca	tttgngatgt	tgtatgcctg	gtatataatg	300
tcagcaatcc	caaatecttt	gaatactgtg	ccaggattttt	taagcaacac	tttatggaca	360
gcagaatacc	ttgcttaate	gtagctgcaa	agtcagacct	gcatagaagt	aaacaagaat	420
acagtatttc	acctactgat	ttctgcagga	aacacaaaat	gcctccacca	caagccttca	480
cttgcaatac	tgctgatgcc	cccagtnagg	atatctttgt	taaattgaca	acaatggacc	540
tg						542

<210> 711
 <211> 394
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(394)
 <223> n = A,T,C or G

caaaccctact	ccaccttact	accagacaac	cttagccaaa	ccatttacct	aaataaagta	60
taggcgatag	aaattgaaac	ctggcgcaat	agatatagta	ccgcaaggga	aagatgaaaa	120
attataarca	agcataatat	agcaaggact	aacccttata	ccttctgc	aatgaattaa	180
ctanaaataa	ctttgcaagg	agagccaaaag	ctaagacccc	cgaaaccaga	cgagctacct	240
aagaacagct	aaaagagcac	acctgtctat	gtagcaaaaat	agtgggaaga	tttataggna	300
gaggcgacaa	acctaccgag	cctggtgata	gctggttgtc	caagatagaa	tcttagttca	360
actttaaatt	tgcccacaga	acctcttaaa	tccc			394

<210> 712
 <211> 552
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(552)

<223> n = A,T,C or G

<400> 712

gaggtctgta	naatgccagg	ctcaaatttg	tctttataat	ttaataccag	aaatctttcc	60
cttgtgatgt	ttctttcttt	ctggattgcc	tctatagcag	gggatagcgg	gggaggataa	120
ggcacatctt	tgntgtactg	agaaatttga	ccacgcagga	tgatgtggct	gttctcattc	180
atctgcacag	agaaaaataa	tgataaaata	tccctttcct	atgtttactg	attttatggc	240
tgccataatg	gaagcctcct	tgactattta	atcctttctg	tcaactaggt	tcgatttttt	300
ttttaattta	cctgttagag	gtatttaana	attttaacta	gctanaaata	attacattcc	360
aaaggaacac	caaggcaaat	aaatggttgg	taatcagcaa	aagaattaca	ttagttgttg	420
ntgctactta	ttagggggag	aactgttttt	ttttaaattt	aaacaattta	ataatctcaa	480
ctgcaaataa	tttttagatgc	agcaaaggac	tatgtagncg	ttaatacctc	atgttgatat	540
tttcataata	tt					552

<210> 713

<211> 518

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (518)

<223> n = A,T,C or G

<400> 713

ccaaaaactg	gaagcagctc	actaaacaaa	cagtggcata	cccatagaac	tgcatacttc	60
tcagcaglat	gaaagaatga	gctactttata	taagcatcat	tgataaacct	caaaaaaaaaa	120
atgccacatg	aanaaaccca	aagggganaa	acataaaaaac	tttatatgtc	agtcataataa	180
aattctanaa	aatgcaaact	aatccatcnt	aaaggaaagt	aatcaacag	ttgtctggag	240
gaccananag	agcaggagga	ganagattat	taaaggggtt	aaagtaaatt	tgggagtgcc	300
cttctntttt	taaatnctat	gaaaatgaaa	gtaaaggcnc	atgcatgttg	taaactaata	360
gtaacaaaca	naatgggttg	gagtgggggtg	ttgtctgggg	acatcattac	aaaatgtaag	420
ccagtttatn	taaattttga	aaagaccgtg	gactctgata	tgactgatna	atgttggaag	480
agataagtgt	gctgcaaagt	ggggaattaa	taaaacag			518

<210> 714

<211> 281

<212> DNA

<213> Homo sapien

<400> 714

ccaattgatt	tgatggtaag	ggaggggatcg	ttgacctcgt	ctgttatgta	aaggatgcgt	60
agggatggga	gggcgatgag	gactaggatg	atggcgggca	ggatagtcca	gacgggtttct	120
atttcttgag	cgtctgagat	gttagtatta	gttagttttg	ttgtgagtgt	taggaaaagg	180
gcatacagga	ctaggaagca	gataaggaaa	atgactatga	gggcgtgata	atgaaagggtg	240
ataagctctt	ctatgatagg	ggaagtagcg	tctttagtag	c		281

<210> 715

<211> 443

<212> DNA

<213> Homo sapien

<400> 715

cttgaaatca	gcaacacact	tacaaatgag	aaaatgaaaa	tagaagagta	tataaagaaa	60
gggaaagagg	attatgaaga	gagtcacacg	agagctgtgg	ctgcagaggt	atccgtactt	120

gaaaaactgga	aggagagtgga	agtgtataag	ctacagatca	tggagtcaca	agcagaagcc	180
ttttctgaaga	agctgggggt	gattagccgt	gattcctgcag	catatcccga	catggagtct	240
gatatacgtt	catgggaatt	gtttctttct	aatgttacaa	aagaaattga	gaaagcaaag	300
tctcagtttg	aagaataaat	taagggaatt	aaaaatgggt	cccggctcag	tgaactttct	360
aaagtgcaga	ttttctgagct	ttcatttctt	gcctgttaaca	cggttcaccc	cgagttactc	420
ctcagctctt	caggccacga	ctg				443

<210> 716
 <211> 639
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(639)
 <223> n = A,T,C or G

ccaaanaaaa	tgaagtagag	agttctgcata	gtaagcttac	agataccttg	gtatcaaaaac	60
aacagttgga	gcgaagatta	atgcagttta	tggaaacaga	gcagaaaagg	gtgaacaaaag	120
aagagctctt	acaaatgcag	gttcaggata	ttttggagca	gaatgaggct	ttgaaagctc	180
aaattcagca	gttcatttcc	cagatagcag	cccagacctc	cgcttcagtt	ctagcagaag	240
aattacataa	agtgattgca	gaaaaggata	agcagataaa	acagactgaa	gattcttttag	300
caagtgaacg	tgatcgttta	acaagtaaaag	aagaggaact	taaggatata	cagaatatga	360
atttctttat	aaaagctgaa	gtgcagaaat	tacaggccct	ggcaaatgag	caggctgctg	420
ctgcacatga	attggagaag	atgcaacaaa	gtgtttatgt	taaagatgat	aaaataagat	480
tgctggauga	gcaactacaa	catgaatttt	caaacnaaat	ggaagaattt	angattctaa	540
atgaccaaaa	canagcatta	aaacagaag	ttcagaagct	gcagactctt	gtttctgcac	600
angcctaata	aggatgntgn	ggaacaaatg	gaaaaattg			639

<210> 717
 <211> 473
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(473)
 <223> n = A,T,C or G

nntgaggcta	ctgctgtttt	attacaacat	tacctcttgt	ttttataaag	tgtaccaaga	60
tttaaattga	taactttatt	ttacttgaaa	aaaaaaaagt	ttttttatca	ccagtgttac	120
agttgtcttc	tgttttcttt	tgttttgntt	tatttgnntt	cttttttagc	caaagagtga	180
acagaanatt	ttctttattt	ggtggctatt	catttttactt	ttaaaagtga	ttggtggatt	240
ttagactaat	tatgggggaa	tttgccacca	aaataaaaaa	tatgtaaagn	gtagtgatta	300
cagagtgggt	aaaatgtggg	ttagtactta	tttattccat	taattgatta	tttgactgtt	360
tataaagaaa	gttgctttat	ttcttttaac	atcttcacaaa	gatgatcctt	tcttgtcaca	420
ttatagccaa	aagaagcaga	gaacttccat	gtctgcattt	ggttcctggg	tgg	473

<210> 718
 <211> 207
 <212> DNA
 <213> Homo sapien

```

<400> 718
ggtaaagtct agtataatat ttaccatctc acttctagga atactagtat atcgctcaca      60
cctcataacc tccctactat gcctagaagg aataatacta tcaactgttca ttatagctac      120
tctcataacc ctcaacaccc actccctctt agccaatatt gtgcctattg ccatactagt      180
ctttgccgcc tgcgaagcag cggtagg                                           207

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<210> 719
<211> 255
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(255)
<223> n = A,T,C or G

```

```

<400> 719
cctatattac ggatcatttc tctactcaga aacctgaaac atcggcatta tctcctgtct      60
tgcaactata gcaacagcct tcataggeta tgtcctcccg tgaggccaaa tatcattctg      120
aggggccaca gtaattacaa acttactatc cgccatccca tacattggga cagacctagt      180
tcaatgaatc tgaggagget actcagtaga cagncccacc ctcacacgat tctttacctt      240
tcacttcata ttgcc                                                         255

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```

<210> 720
<211> 455
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(455)
<223> n = A,T,C or G

```

```

<400> 720
ccaatgtcga aacctacaag atttccttaa aatctctaata agaggcatta cttgctttca      60
attgacaaat gatgccctct gactagtaga tttctatgat ctttttttgt ctttttatga      120
atatcattga ttttataatt ggtgctattt gaanaaaaaa atgtacattt attcatagat      180
agataagtat caggtctgac cccagtggaa aacaaagcca aacaaaactg aaccacaaaa      240
aaaaaggctg gtgttcacca aaaccaaact tgttcattta gataatttga aaaagctcca      300
tagaaaaggc gtgcagtact aagggaacaa tccatgtgat taatgnttnc attatgttca      360
tgtaanaagc cccttatttt tagccataat tttgcatact gaaaatccaa taatcagaaa      420
agtaattttg ccacattatt tatnaaaaat gttcc                                     455

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```

<210> 721
<211> 530
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(530)
<223> n = A,T,C or G

```

```

<400> 721
ccagtgtgtg ctgccgtggt ttagtgattg ggtgttagaa ataaaaactc aggtctattt      60

```

```

cttaccagtc agtaacaatt tttagagaat gtacttggtata tataatatat ggacttcagg 120
aactttattg gggngggggg ttaattttgc cttaccctgt tcactttcag atgattaggc 180
ttttgcactt tagaatgaga aacttgtgac gttagtgtgt tcttactagc ttttaattgt 240
atgtagcaat gaattgtgaa tcttagtgca gtgggttttt ttaaaaaact caaaaagctg 300
ggaattaaat ggtttcagta ataatgctat accgagggtgc ttgcattgta tttcataatt 360
ttgttacaat ccaaaattat ttttaatgan aagggtttg ggttcagagg tgtgatgaaa 420
gaatgtattt tcgtactgtt aggccttgg aacagatacc ggtgctttct tgaaagatga 480
aagaaatgca atgggtgctc ttcattgcaag gttgcaaacc taccaagaat 530

```

```

<210> 722
<211> 242
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(242)
<223> n = A,T,C or G

```

```

<400> 722
ccaagggtca tgatggcagg agtaatcana ggtgntcttg tgttgtgata agggngggaga 60
ggttaaagga gccacttatt agtaatggtt atagtagaat gatggctagg gtgacttcat 120
atgagattgt ttgggctact gctcgagtg cgccgatcag ggcgtagttt gagtttgatg 180
ctcatcttga tnagaggatt gagtaaacgg ctaggctaga ggtggctaga ataaatagga 240
gg 242

```

```

<210> 723
<211> 472
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(472)
<223> n = A,T,C or G

```

```

<400> 723
cctactatgg gtgttaaatt ttttactctc tetacaagggt tttttcctag tgtccaaaga 60
gccgttcttc tttggactaa cagttaaatt tacaagggga tttagaggggt tctgtgggca 120
aatttaaagt tgaactaaga ttctatcttg gacaaccagc tatcaccagg ctcggtagggt 180
ttgtcgcttc nacctataaa tcttccact attttgcctac atagacgggt gtgctctttt 240
agctgttctt aggtagctcg tctggnttcg ggggtcttag ctttggtctt ccttgcaaag 300
ttattttctag ttaattcatt atgcagaagg tataggggtt agtccttget atattatgct 360
tggttataat ttttcatctt tcccttgccg tactatatct attgcgccag gtttcaattt 420
ctatcgctta tactttattt gggtaaatgg tttggctaan gttgtctggt ag 472

```

```

<210> 724
<211> 292
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(292)
<223> n = A,T,C or G

```


<400> 724
 nccaccactg cagccctaca tacagntgaa aaaaaattcc attctgttaa catttgtttt 60
 ataagttttc acncaatata caaaaaaccc ctctgcactt cttgtaaaga acaaaaaaga 120
 tacacaacag ttaagcgtaa agatcacagg caatagcatt caaacatgga tgtgggnaga 180
 gaaaggagta cctggcatga gtacctgctt agttingactg aatccttgat ttttaatttg 240
 gcttttcctg ggccgntcac aacaccaacg ctgngngagg tatggtagtc ag 292

<210> 725
 <211> 122
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(122)
 <223> n = A,T,C or G

<400> 725
 atagaaaagg cataccctaaa atgttactga aaatntaata caaattccaa gattcaccaa 60
 ngaagtaaca aaaacctggc ctgcangngg nccctatcc cgtggctcca tggntgatgt 120
 gg 122

<210> 726
 <211> 477
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(477)
 <223> n = A,T,C or G

<400> 726
 ctgaaccctc gtggagccat tcatacaggt ccctaattaa ggaacaagtg attatgctac 60
 ctttgcaagg ttaggggtacc gcggccgtta aacatgtgtc actgggcagg cgggtgcctct 120
 aatactggtg atgctagagg tgatgttttt ggtaaacagg cggggtaaga tttgccgagt 180
 tctttttact ttttttaacc tttccttatg agcatgcctg tgttgggttg acagtgaggg 240
 taataatgac ttgttggtga ttgtanatat tgggctgcta attgtcagtt cagtgtttta 300
 atctgacgca ggcttatgcg gaggagaatg ttttcattgtt acttatacta acattagttc 360
 ttctataggg tgatagattg gtccaattgg gtgtgaggag ttcagttata tgtttgggat 420
 tttttaggta gtgggtggtg agcttgaacg ctttcttaat tggcggctgc ttttagg 477

<210> 727
 <211> 416
 <212> DNA
 <213> Homo sapien

<400> 727
 cctgtctttg aatggatgaa atagggttaat aaaaaacatc actgttttaa aactagaaca 60
 ctgaaaaatt ctaggaaagc ttattttccc ttatatTTTT atgggtacttt caacacttaa 120
 taacactatt tcaattaagt tttctcctag agtttatagt atatcagtae attcttttct 180
 gtggatgcaa taatatagaa tcttattcca aatcttactg gcaggttctc ttaaattctt 240
 caacggctgc catagtgatt aaccaaatt agttatgatt tctgcctatc tgtgtgagaa 300
 cttacagggg aaattgttct aaacctgagg aacatgaagt aactgtactg cacactccaa 360

atgatgacag tcattttata tcaccttcaa ttacccaaca gcttttaata gtctgg 416

<210> 728

<211> 416

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (416)

<223> n = A,T,C or G

<400> 728

cctgtctttg	aatggatgaa	ataggttaat	aaaaaacatc	actgttttaa	aactagaaca	60
ctgaaaaatt	ctaggaaagc	ttattttccc	ttatatTTTT	atggtaacttt	caacacttaa	120
taacactatt	tcaattaagt	tttctcctag	agtttatagt	atatcagtac	attcttttct	180
gtggatgcaa	taatatagaa	tcttattcca	aatcttactg	gcaggttctc	ttaaattctt	240
caacggctgc	catagtgatt	aacccaaatt	agttatgatt	tctgcctatc	tgtgtgagaa	300
cttacagggg	aaattgttct	aaacctgagg	aacatgaagt	aactgtactg	cacactccaa	360
atgatgacag	tcattttata	tcaccttcaa	ttacccaaca	gcttttaata	ntctgg	416

<210> 729

<211> 564

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (564)

<223> n = A,T,C or G

<400> 729

ctgtgagtag	aggagtcttc	ccgagagtag	cagttgttga	tcctaatgat	tgaagccttc	60
aggtaagga	ataactgctg	caggaattct	ttcttgaaga	atttaagctg	tttggttaaga	120
attctgtaac	tacatacctt	tgaaacacta	ttcacattca	aataaacgct	tgttttctag	180
ccaggcacag	gctcaattag	tttttcaaac	tctagccaag	gcagtatttc	atttgggaaa	240
tcatgcaaca	gaactgctca	attcttaact	tctcctgctg	ttaacattta	cacttagact	300
gccagcaaca	gttaacttaa	atthttggtct	caagggaaca	aaaaaaaaatt	gcattcagaa	360
tttaatatag	tatttttaaaa	ctaatttttag	cctgtaagnc	attatgagca	atagtaactt	420
ttatacctcc	tcactttgnc	tgataatata	ttctatatgc	tgncaatctg	attatatagt	480
ctatatgcta	gaagttgctg	atthttcatc	tgccaccaaa	aaaaactgtc	cttttttttt	540
tatgggggaa	aaagggaatt	taaa				564

<210> 730

<211> 310

<212> DNA

<213> Homo sapien

<400> 730

ccatttttat	ttcttcttca	gagaagtgtt	tatttaggtc	tgttgcccat	tttacaatta	60
ggccatatgt	ttcttctgctg	ttgagttgta	tgtgtgtttg	tataaatttt	gcataattaac	120
cccttatcac	acgtatgttt	tttaaaataa	atthttgctta	ttaatctttt	atcagatgta	180
tggtttccaa	atatattctt	ccgatccatg	gattctcttt	tttgttatga	ttgtttcttt	240
gctcttcgga	agctttttgt	tttgttttgt	tatttgtttt	actttgatat	agtcctattt	300
attgtttttg						310

<210> 731
 <211> 467
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(467)
 <223> n = A,T,C or G

<400> 731
 ngacaacctt agccaaacca tttacccaaa taaagtatat gcgatagaaa ttgaaacctg 60
 ggcgaataga tatagtacgg caaggggaaag atgaaaaatt ataaccaagc ataataaagc 120
 aaggactaac cccatatacct tctgcataat gaattaaacta gaaataactt tgcaaggaga 180
 gccaaaagnta agaccccccga aaccagacga gctacctaag aacagctaaa agagcacacc 240
 cgtctatqta gcaaaatagn gggaagattt atagggnagag gcgacaaaacc taccgagcct 300
 ggtgatagct ggttgtccaa gatagaatct tagntcaact tttaaatttgc ccacagaacc 360
 ctctaaatcc ccttgtaaat ttaactgnta gnccaaagag gaacagntct ttggacacta 420
 ggaaaaaacc ttgtagagag agtaaaaaat ttaacaccca tagtagg 467

<210> 732
 <211> 492
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(492)
 <223> n = A,T,C or G

<400> 732
 cctactatgg gtgttaaatt ttttactctc tctacaagggt tttttcctag tgtccaaaga 60
 gctgttctct tttggactaa cagctaaatt tacaagggga tttagagggt tctgtgggca 120
 aatttaaagt tgaactaaga tctatctctg gacaaccagc tatcaccagg ctcggtaggt 180
 ttgtgcctct tacctataaa tcttcccact attttgcctac atagacgggt gtgctctttt 240
 agctgttctt aggtagctcg tctggnttcg ggggtcttag ctttggctct ccttgcaaag 300
 ttatttctag ttaattcatt atgcagaagg tatagggggt agnccttgct atattatgct 360
 tggntataat ttttcatctt tcccttgccg tactatatct attgcgccag gtttcaattt 420
 ctatcgcta tactttatct gggtaaatgg tttggctaag gttgtctggt agtgaggcgg 480
 agngggtttg gg 492

<210> 733
 <211> 562
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(562)
 <223> n = A,T,C or G

<400> 733
 ntgaaatggc aatagcattc actgtcgtat ttgacagtgc tcaggaagtg ggacgttaac 60
 ttggaagggt cttgtttgta ttagctctgc taggtttacc tctacaacgt agatttcagc 120

```

agctatgctg actgacacta cattctagtt ctttaagattt tttttccana tcccccttc 180
cccagctaga catacgtagc atactttcat cttattcagt ctttctgtaa cctgctgctg 240
cttttagtcc tcttcacctc agatcggaat caatggagtg ggcccagagg atacatttta 300
attccagtaa tggtaggtag atttgctctg ctttctaaaa catctcctca tttcatattt 360
ccactccata ttgattccat aagggaataa taatgggtgn ttctccttt agggaggcaa 420
tgcaaaagag gtggacatct tctctctctg agggacagta gttgatttcc cttgaaggag 480
cttacatatt gactgtnttt cacaataacc tgnntgcccc agntcaatcc ctcattttta 540
tacttaaatgt tggtnctggg ct 562

```

<210> 734
 <211> 265
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(265)
 <223> n = A,T,C or G

```

<400> 734
nggtccagaa caagagaaat aactgcagaa aacacatatg gttggaaacc atgcgcttgt 60
gactttttct gtagectatg ggagtggaca gagtgggtaa cccaagatgt ttttaagact 120
gactggacta agaatggcgt acttatagcc aactacttcc cccctaattgt gactgaaggg 180
attcataatg atcacaatta gcattacggt taagtatttt agggttgacg tctaagctca 240
cacttgaaag gtatttatct aatgg 265

```

<210> 735
 <211> 216
 <212> DNA
 <213> Homo sapien

```

<400> 735
atttaatacg tgctcactgc tcggcacgcg ctgaagctac agttaacaat cagtgaagcac 60
atattaaatg ataaaaataat gctgatggta aacattcata acagcagagt aagatttttg 120
cagttttgtg tctcggtaac ataactgtaa ccttagatga acacctatcc cttcatgac 180
tgactttaga ggcaaggagt ttgtaacatc taatgg 216

```

<210> 736
 <211> 285
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(285)
 <223> n = A,T,C or G

```

<400> 736
ctgaaaggca acntggagac tagttagtct agtccccctca tattataaat tggtagtctg 60
aggccaggca gtaaatgtct atggagctct ccaatttaag gccagtttga ctccaagggt 120
agggttctta gtaaaatttt gtgattaaat tggaaactct aatttatatt tctatgngtt 180
tttggtagct aatcttcata agcaagccat atttcaaggc tgatcaatga aaacacccaaa 240
taccaaagct tcttttccct tccaaattta ctgacccttt gtcag 285

```

<210> 737

<211> 509
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(509)
 <223> n = A,T,C or G

<400> 737
 agangaagaa gangaagatt aagggaaaag tacatcggtc aagaagagct caacaaaaca 60
 aagcccatct ggaccagaaa tcccgcgat attactaatg aggagtacgg agaattctat 120
 aagagcttga ccaatgactg ggaagatcac ttggcagtga agcatttttc agttgaagga 180
 cagttggaat tcagagccct tctatttgc ccacgacgtg ctctttttga tctgtttgaa 240
 aacagaaaaga aaaagaacaa catcaaattg tatgtacgca gagttttcat catggataac 300
 tgnaggagag taatccctga atatctgaac ttcattagag gggtaggnaga ctcgaggagat 360
 ctccctctaa acatatcccg tgagatgttg caacaaagca aaattttgaa agttatcang 420
 aagaatttgg gtcaaaaaat gcttanaact ctttactgaa ctggcggaag atnaagagaa 480
 ctncagana ttctatgagc agntctctt 509

<210> 738
 <211> 97
 <212> DNA
 <213> Homo sapien

<400> 738
 cagtgaattg aatacgactc ctatagggcg aattgggcc tctagatgca tgctcgagcg 60
 gccgcagtg tgatggatat ctgcagaatt cgccctt 97

<210> 739
 <211> 209
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(209)
 <223> n = A,T,C or G

<400> 739
 ccgncagtg gatggatatt tgcagaattc gcccttagcg gcccgcccg gcagggctct 60
 tatatatagt agcttagttt gaaaaaatgt gaaggacttt cgtaacggaa gtaattcaag 120
 atcaagagta attaccaact taatgttttt gcattggact ttgagttaag attatTTTTT 180
 aaatcctgag gactagcatt aattgacgg 209

<210> 740
 <211> 164
 <212> DNA
 <213> Homo sapien

<400> 740
 ccaagctaatt gggtagacact gtgaatgcaa ctctaatagca gcctggcgta aatggctcta 60
 tgggcaactaa ctttcaagtt aacacaaaca gaggaggtgg tgtgtgggaa tctgggtgcag 120
 caaactccca gagtacatca tggggaagtg gaaatggcgc aaat 164

<210> 741
 <211> 514
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(514)
 <223> n = A,T,C or G

<400> 741

ccagtcagaa ttgagatgtg ctgtgagtg	aaaatacact caaatctaag acttagtatg	60
gaagaaaaag aagataaggt gnttcattaa	taatctttta tattgattac atgttgaaat	120
gatattttta atatactggg ttacataaac	tgttattaag attaattttg cttgtttctt	180
ttttaatatg gctactagaa aattaaaaat	tatgtttgtg ttacatttat atttctgttg	240
aacaatgtgg acatagataa tctacagtca	ttacattagc cttagaattt agcatcatac	300
ttttaagrac tctgggggtac taacttgaac	tcccagaaac ccataagcac actctgcata	360
taaattattg caaaattcat tcttatctct	ctgaaagata tgcattttta gggtaaaaag	420
aattcacaaa atattganc ctttaacaaat	gtcaattagt atatggagag agctaaagga	480
cttctgtgag actgggtncat tggggaaaaa	caga	514

<210> 742
 <211> 439
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(439)
 <223> n = A,T,C or G

<400> 742

gcaggtctta tgcatagtta ataaggnta	taatctactc aacatggaaa atgggagcct	60
atttgcaaac acacagagtaa ttaaagtacc	aattctctct tagtttcttt ttttatagtt	120
ggntttatgtt gcaattataa atgntaaaca	tccctagaga tgaaagttaa aatggctgat	180
cacagatrag tagcaaaata caaattgaca	attcaaaatt ataaataaaa ctctgttgag	240
gatgtttaac tttagagcctc caaatttaag	agctaagcct ggaagaaaca aatttatagg	300
ttatatttcc ctcttaaaatt aaaaaacaaa	cttctctctg cagtagnttg tgaattcctt	360
tcattgnaat gataccatga ttacaggatc	aaaaatgctt aacttacttg ccattctgct	420
cacatcatca cagttgttt		439

<210> 743
 <211> 275
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(275)
 <223> n = A,T,C or G

<400> 743

cangaagcta cttcccttat catagaagag	cttatcacct ttcattgatca cgccttcata	60
gtcatttttc ttatctgctc cctagtcttg	tatgcccttt tctaacact cacaacaaaa	120
ctaactaata ctaacatctc agacgctcag	gaaatagaaa ccgtctgaac tatcctgccc	180

gccatcated tagtctctcat cgcctctccc tccctacgca tccctttacat aacagacgag 240
gtcaacgata cctcccttacc catcaaatca attgg 275

<210> 744
<211> 295
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1) ... (295)
<223> n = A,T,C or G

<400> 744
ctgttctttt aaaaaatctg gatgtttttt atttagtgat tgttcgacaa ttagctgctt 60
caaaacataa tgtgcatctg ttatgaatgc cttcatatac taatacagat actctgataa 120
tattacactc taataaggat aatgctgaat tttgaaagga cacaaaacat ctaatgccaa 180
tatatacatg attagcgaac atctttcgta tcaagaccac tegtttttta ataaagatgc 240
aagtgtcagt tgtagattat tgggatgaag ctaaatcccc agaatgcagc agcag 295

<210> 745
<211> 477
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1) ... (477)
<223> n = A,T,C or G

<400> 745
cgcgttactg tacatattgc tagcaggaga caactggaaa tactaaacaa atactggaat 60
tcacattaca gagagacgaa accaaccatgg atgccacaca taacttcctt tgtagtttca 120
cagagagcct atttgtggtt gctcaggtgg ggctacacat tgcttgacga aatggcctga 180
tcatagctct atgaaacaat gaattcggaa tgaaatctta ccatgacacc tctctgtagg 240
aaagaaatgt tgcctcacgt gtgctaagtt gagataataa ttttcacat atttatatac 300
agagaatcac tctcaaatct aacccaagat aagcaatagg atttgggggt gacttgtaaa 360
catttctaac aacacttttc ttttttctag aggtcactct caaacactga tatatcacta 420
tagtttgagt gtanggatcc agtaatcaaa ggttgttatt gcaaaaagagc caggcag 477

<210> 746
<211> 524
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1) ... (524)
<223> n = A,T,C or G

<400> 746
ctgtgaaatt ggggtgggag agccaaaata ctttacaact tcagaccgga gaaaaggcca 60
gaggtgtgaa gttagactct atgatgaaac agagtcgtct tttgcgatga catgttggga 120
taatgaatcc attctacttg cacagagctg gatgccacga gaaacagtaa tatttgcctc 180
agatgtaaga ataaattttg acaaatttcg gaactgcatg acagcaactg taatctcaaa 240

aaccattatt	acaactaate	cagatatacc	agaagctaac	attctgctga	attttatacg	300
agaaaaataa	gaaacaaatg	ttctggatga	tgaaattgac	agttatttca	aagaatccat	360
aaattttaagt	acaatagttg	atgtctacac	agntgaacaa	ttaaaggga	aagctttgaa	420
gaatgaagga	aaagctgac	cttcttatgg	catcctttat	gcctacattt	ccacactcaa	480
cattgatgat	gaaactcaaa	agtagttcga	aatagatggt	ccag		524

<210> 747
 <211> 456
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(456)
 <223> n = A,T,C or G

<400> 747	
cctcagttct	60
tgattgtggt	
tgacggggcg	
tcaccatgaa	
ggagcccatt	
tagtataaag	120
cttccaacct	
tttctcttaa	
tcgtttcttt	
aatcttttaa	
accatcttca	
agtgcatagg	180
ggagtttccg	
atgccagagg	
atgaaagcaa	
gtgctttctc	
cacctctctc	
tcccagagtg	240
aaaacaaatc	
cttttgctga	
tacttgtttc	
aaaagcatcc	
attgtaaagc	
ttctcagtga	300
cacaaaalac	
tgagaggtaa	
ctttttatca	
atcaaaccac	
ataccccaat	
ttaacacctt	360
tcagtgtctc	
gaattcaact	
gacagactaa	
agggtgtttc	
ctgtaacagt	
ctgaaatatt	420
aagtgttttt	
tttgttttgt	
ttttaaatct	
tatttcagaa	
aacttctctc	
nggggtagga	456
aagtacacat	
gaagcagcaa	
agtaacgaag	
aaaaac	

<210> 748
 <211> 474
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(474)
 <223> n = A,T,C or G

<400> 748	
ccanaccagg	60
gaaccaaag	
cagacagnga	
agttctctgc	
ttcttttggc	
tataatgnga	120
caagaaaggg	
atcatctttt	
gaagatgttt	
aaagaaataa	
agcaactttc	
tttataaaca	180
gtcaaataat	
caattaatgg	
aataaataag	
tactaaccca	
catttttaacc	
actctgtaat	240
cactacactt	
tacataatct	
ttatttnggn	
ggcaaantcc	
cccataatta	
gtctaaaatc	300
caccaatcac	
ttttaaaagt	
aaaatgaata	
gccacaaaaa	
taagaaaatc	
ttctgttcac	360
tttttggtta	
aaaaggaaaa	
caaataaaac	
aaaacaaaaa	
gaaacagaag	
acaactgtaa	420
cactggtgat	
aaaagaaact	
ttttttttac	
aagtaaaata	
aagttatcaa	
tttaaatctt	474
ggncacttta	
taaaaaacaag	
aggtaatggt	
gtaataaaaac	
agcagtagcc	
tcag	

<210> 749
 <211> 355
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(355)
 <223> n = A,T,C or G

<400> 749
 cctgggttnna gnggctgact gnaacctcca ctctctgttc tcaggcaatc ctctctgcctc 60
 agcctcctta gtagctggga ctacaggagt gtgcaaccat gcccaactaa tttttgtatt 120
 tttaatagag acagggtttc accatgttga tcagggttggc ctccaactcc tgacctcagg 180
 tgatccacct gtcccagcct cccaaagtgc tgggattaca ggcattgagcc accacgcccg 240
 gnccaggata aagtaaaaaat ttgtaagcac acaaggccct ttgcaacctg gctcctgggt 300
 actactttta nctcctgcc ctcccaaatg tntcactgt ttttctanac atacc 355

<210> 750
 <211> 493
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(493)
 <223> n = A,T,C or G

<400> 750
 ccattgctggc ctggaactcc tgaactcagg tgatccaccc gccctcagtct cccaatagat 60
 tacatatatt attaatgaat tgcctccttt aacaccctat tcattgaatt ttccagtaaa 120
 ccacaattac taattactcc tgaaatcaga aaaggaggta aaaagatttt ataacagtat 180
 cctatgaaat ctactacttt caagtaatag tagttgaatt accaaaaccc gtcactcaag 240
 ccaatgacta caattaagat atgagtaaca ttctctagat aaataaagtc aattaattat 300
 atttgcactc gggaaataga gaaagtacat ataagccatg attttgaagn caaaagagag 360
 agantatttg ccaaggagggt gtgagttata gtatgtaatt ataacatata gaagcttttt 420
 gtatgctggc aactaatttt aatttcctac attnttatgg agatttctgc tattcttctc 480
 ctattttcca cct 493

<210> 751
 <211> 364
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(364)
 <223> n = A,T,C or G

<400> 751
 cgaggctcgg naaggtcacc aagtctgcc aganagctca gaaggctaaa tgaatattat 60
 ccctaatacc tgccacccca ctcttaatca gtggtggaag aacggtctca gaactgtttg 120
 tttcaatttg ccatttaagt ttagtagtaa aagactgggt aatgataaca atgcatcgta 180
 aaaccttcag aaggaaagga gaatgttttg nggaccactt tggttttctt ttttgcgtgt 240
 ggcagtttta agttattagt ttttaaaatc agtacttttt aatggaaaca acttgaccaa 300
 aaatttgatc cagaattttg agaccatta aaaaagttaa atgagataaa aaaaaaaaaan 360
 cntg 364

<210> 752
 <211> 498
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(498)
 <223> n = A,T,C or G

<400> 752

ctggattatg ggttgggnatt ggccatctgt tggctccct ccagggaatag ctatgatgca	60
gtgaatccct tagaagttac aattctcaaa ttacatactt cctcagatgt aacattagaa	120
ctcaatatatt ctaacaataa cataccagaa aaggctggac tggcactcat ctgctgacta	180
acttgtagcc tcagtaatat gacatacttg cctttaacaa attatctcaa attaactaac	240
agaccttcag aaaatggaga ttctttttga tggggacata atcaaattta agtctgagaa	300
atatgcttaa cagttggaa ccaattaaa tgtactgatt ttaaagttta gacattaaca	360
agtgatanat tagcctcaaa aaaagacaat ttggnaagg n ttaggtcttt taatttggtg	420
cttgntcaca acttgactgg tgcttctttt cttgctgctt cacatcaage atggggccaa	480
ttctattttt agtaaatg	498

<210> 753
 <211> 467
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(467)
 <223> n = A,T,C or G

<400> 753

nacaacctta gccanaacca tttaacccaaa taaagggata ggcgatagaa attgaaacct	60
ggcgcaatag atatagnacc gcaagggaaa gatgaaaaat tataaccaag cataatatag	120
caaggactaa cccctataac ttctgcataa tgaattaact agaaataact ttgcaaggag	180
agccaaagct aagacccccc aaaccagacg agctatctaa gaacagctaa aagagcacac	240
ccgtctatgt agcaaaatag tgggaagatt tataggtaga ggcgacaaac ctaccgagcc	300
tgggtgatagc tggntgncca agatagaatc ttagntcaac tttaaatttg cccacagaac	360
cctctaaatc cctttgtaaa ttttaactgt agtccaaaga ggaacagctc ttggacacna	420
ggaaaaaaac ttgcagagag agtaaaaaat ttaacaccca tagtagg	467

<210> 754
 <211> 196
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(196)
 <223> n = A,T,C or G

<400> 754

gtcatgttca agtgttntaa tctgacgcag gcttatgcgg aggagaatgt tttcatgtta	60
cttatactaa cattagtctt tctatagggt gatagattgg tccaattggg tgtgaggagt	120
tcagttatat gtttgaggatt ttttaggcag tgggtgttga gcttgaacgc tttcttaatt	180
ggtggctgct tttagg	196

<210> 755
 <211> 381
 <212> DNA
 <213> Homo sapien

```

<400> 755
ctggaaagga ttctgtacat ataagacatc aaatattgag ggatactgga actttttaa
60
taatgggcaa agaaagtcaa caaaggaagt tcatatgaaa tcaaactagt aatatgatta
120
caaaaaaaaaa gttttaaatt tttcttgccc ccagtcttat catttctgag ccaaatacaa
180
ttctatcgaa atcacctgaa actgaaatca ccattctagg ctggttttcc cataaagatg
240
gactgctcca aaaagaggaa tcaagaaaga atttggctca cagtgaatta ttcactttgt
300
cttagttaac taaaaataaa atctgactgt taactacaga aatcatttca aattctgtgg
360
tgataataaa gtaatgaccg c
381

```

```

<210> 756
<211> 341
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(341)
<223> n = A,T,C or G

```

```

<400> 756
ggntataaac ctattattta ttgcagaact aataaaaaat ccaaagcctt gtatttgtac
60
atctttatta tctctaaagc actttcctca acctaatctc agtttttaca attgggtactc
120
aagaaaaatag agacagaaat catttgattt tgcccagaaa ccactctgctt atatttataa
180
ggccacctaa ttgaaatca catatagacc aggcgcgggtg gctcacgctt gtaattccaa
240
cattttgaaa ggccaaggca ggtggatcac aagggtcaaga gattgagacc atcttggcca
300
acatggcgaa acccgtctc taccaaaaaat acaaaaatca g
341

```

```

<210> 757
<211> 479
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(479)
<223> n = A,T,C or G

```

```

<400> 757
cgcnttactg tacatattgc tagcagggag acaactggaa atactaaaca aatactggaa
60
ttcacattac agacagacga aaccaacatg gatgccacac ataacttctt ttgtagtctc
120
acagagagcc tatttgtggt tgctcaggtg gggtcataca ttgcttgacg aaatggcctg
180
atcatagctc tatgaaacaa tgaattcgga atgaaatctt accatgacac ctctctgtag
240
gaaagaaatg ttgcttcacg tgtgctaagt tgagataata atatttcaca tatttatata
300
cagagaatca ctctcaaatt taaccaaga taagcaatag gatttggggg tgacttgtnc
360
acatttctaa caacactttt cttttttcta gaggtcactc tcaaacactg atatatcact
420
atagnttgag ngtagggatt caagtaatca aagggttgta ttgcaaaaga gccaggcag
479

```

```

<210> 758
<211> 267
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature

```

<222> (1) ... (267)

<223> n = A,T,C or G

<400> 758

ccatgncatg gtttatagat agttgggtgg gttgggtgtaa atgagtgagg caggagtccg	60
aggaggttag ttgtggcaat aaaaatgatt aaggatcttc gtatcagaga taaggttcgt	120
ccttttagtgt tgtgtatggc tatcatttgt tttagaggtta gtttgactag tcattgttgg	180
gtggtaatta gtcggttggt gatgagatat ttggaggtgg ggatcaatag agggggaaat	240
agaatgatca gtactgcggc gggtagg	267

<210> 759

<211> 449

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (449)

<223> n = A,T,C or G

<400> 759

cgaggtcttg aaatcagcaa cacacttaca aatgagaaaa tgaaaataga agagtatata	60
aagaaagggg aagaggatta tgaagagagt catcagagag ctgtggctgc agaggtatcc	120
gtacttgaaa actggaagga gagtgaagtg tataagctac agatcatgga gtcacaagca	180
gaagcctttc tgaagaagct ggggctgatt agccgtgac ctgcagcata tcccgcacatg	240
gagtcctgata tacgttcatg ggaattgttt ctttctaatag ttacaaaaga aattgagaaa	300
gcaaagtctc agtttgaaga acaaattaag gcaattaaaa atggttcccc gctcagtgaa	360
ctttctaagc ngcagatttc tgagctttca tttcctgcct gtaacacggt tcatcccgag	420
ttactccttg agtcttcagg ccacgatgg	449

<210> 760

<211> 414

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (414)

<223> n = A,T,C or G

<400> 760

ccatnaactg gaagcagctc actaaacaaa cagnggcata cccatagaac tgcatacttc	60
tcagcagtat gaaagaatga gctacttata taagcatcat tgataaacct caaaaaaaaa	120
atgccacatg aagaanccca agggggagaa acataaaaaac tttatatgnc agncatataa	180
aattctagaa aatgcaaact aatccatctt aaaggaaagt aaatcancag ttgtctggag	240
gaccanagag agcaggagga gagagattnt taanggggtt aaagtaaatt ngggagtgcc	300
cttccatttt taaatnctat gaaaatgaaa gtaaaggccc ntgcatgttg taaactaata	360
gtaacaaaca gattgggttg gagtgggttg ttgtctgggg acatcattac aaan	414

<210> 761

<211> 428

<212> DNA

<213> Homo sapien

<400> 761

```

gagcctcact aaaataacag atttcagtat agccaagtcc atcagaaaaga ctcaaattgga      60
atgattttaca agatagaaca ctttaaacca ggtcagtcct atctttttgt agctgaaggc      120
tatcagtcac aacacaattt cgcgtacacc tctgctcatt atggaattac acttaaaacg      180
aatctcaaga ggggtgacct tgttggttca gataccatcc ctaaggagag tgggttaacag      240
gaagattgcc agtggttactg atggaaagaa gtgtttgttt gttttttttc ttgtcaaaga      300
cttacaccat agtttttaaat taaactgtca ggcattttct cagacagggtt ttccttttca      360
atgcagtaat gaagaactaa gataaaaatc atgacttttg actgccactc aacattatta      420
catgcacc                                         428

```

```

<210> 762
<211> 574
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(574)
<223> n = A,T,C or G

```

```

<400> 762
cagggtctgaa ctgataagta ttaagagacg tttgttgcta gttaagngtt ccagttgaga      60
gttcgaagtg aaaacctggg ctctttacca gtgttgagtg agaagattta tttctctttc      120
ctctgaattt accacatgta acatcacaga gacatgtaga gttcctttag gatttgcgat      180
ttgaaccagn ccagttctgat tttcaggtga attctgtgaa gagcttgatg ggggaagtct      240
gaagacagaa ggaattaggg aaaagggtga tacttacaga gtaaaggaaa taaatgaaaa      300
gataatggta tttttggtag ccacagggaa atagcaggag gggactggag atcacacaca      360
cgcacacgca cacacacaaa cacacacaca cgctaaaact caaactaaaa acctcccaaa      420
ggagctgctt tgtttgcaga cttcaattng aagtagatac taagggaag aatagaccag      480
ttaaaattca cctgaaaatc tcttcccann cttcaaattg gctaaaatat cactgtcagc      540
ttagcatctc tncatgtatg tatatataga tgta                                         574

```

```

<210> 763
<211> 465
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(465)
<223> n = A,T,C or G

```

```

<400> 763
cctactatgg gtgttaaaat tttttactct ctctacaagg ntttttecta gtgtccaaag      60
agctgttccct ctttggacta acagttaaat ttacaagggg atttagaggg ttctgnnggc      120
aaatttaaaag ttgaactaag attctatctt ggacaaccag ctatcaccag gctcggtagg      180
tttgctgect ctacctataa atcttcccac tattttgcta catagacggg tgtgctcttt      240
tagctgttct taggtagctc gtctggtttc gggggtctta gctttggctc tccttgcaaa      300
gttattttcta gttaattcat tatgcagaag gtataggggt tagtccctgc tatattatgc      360
ttggatataa tttttcatct ttcccttgcg gtactatata tattgcgcca ngtttcaatt      420
tctatcgect atactttatt tgggtaaatg gtttggctaa gggttg                                         465

```

```

<210> 764
<211> 151
<212> DNA
<213> Homo sapien

```

<400> 764
 ctgtcaatta atgctagtc tcaggattta aaaaataatc ttaactcaaa gtccaatgca 60
 aaaacattaa gttggtaatt actcttgatc ttgaattact tccgttacga aagtccttca 120
 catttttcaa actaagctac tatatttaag g 151

<210> 765
 <211> 251
 <212> DNA
 <213> Homo sapien

<400> 765
 gaagagctta tcacctttca tgatcacgcc ctcatagtea ttttctttat ctgcttctta 60
 gtctgtatg cctttttctt aacactcaca acaaaactaa ctaatactaa catctcagac 120
 gctcaggaaa tagtaaccgt ctgaactatc ctgcccgcga tcctcttagt cctcctcgcc 180
 ctcctatccc taagcatcct ttacataaca gacgaggtea acgatccctc ccttaccate 240
 aaatcaattg g 251

<210> 766
 <211> 375
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(375)
 <223> n = A,T,C or G

<400> 766
 cgaggctctgn cctcctgggt cttcctccat tattaacaga agagcatact ggtttcggtc 60
 cataaaatct ttgggaaggg acaactgtaa aggaagttca tagtcgtcaa tatgaaggat 120
 ttttaatttct ggcttttcta tctttctctt caggatagct tccttcagca tagaattggt 180
 ttccaatata aaatattttg ctgggttggt cgtactatgt aggctgacca ctgggacctt 240
 tggaccttca cagaataata agaaatgttg attcatggga ctaaaactgg catcaaaaata 300
 tgtacattgt tctttcatga aattacatga aatgcattgg cgattcaata atccttcagt 360
 agaagcactg tacag 375

<210> 767
 <211> 485
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(485)
 <223> n = A,T,C or G

<400> 767
 cgaggctctga accctcgtgg agccattcat acaggtcctt aattaaggaa caagtgatta 60
 tgctaccttn gcaacggttag ggtaccgcgg cccgttaaac atgtgtcact gggcaggcgg 120
 tgccctctaat actggtgatg ctagagggtga tgtttttggg aaacaggcgg ggtaagattt 180
 gccgagttcc ttttactttt tttaaccttt ccttatgagc atgcctgtgt tgggttgaca 240
 gtgagggtaa taatgacttg ttggtgattg tagatattgg gctgttaatt gtcagttcag 300
 tgtttttaate tgacgcaggc ttatgcggag gagaatgttt tcatgttact tatactaaca 360
 ttagttcttc tatagggtga tagatnggtc caattgggtg tgaggagntc acttatatgt 420

ttgggatttt ttaggtaagn ggggtgtgag cttgaacgct ttcttaattg ggggctgctt 480
ttang 485

<210> 768
<211> 379
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(379)
<223> n = A,T,C or G

<400> 768
ctgatattct attaaagata caaagaggag ctggnaccat ttctttctgaa actattacaa 60
acaactgaaa aggtggaatt tctccctaatt tcatTTTTtagg aggccagcat tatactgata 120
ccaaaacctg gcagagggtac aataataaaa ggaaacttca agtcagatc actgatgaac 180
accaatgtga aaatcctcaa taaaatactg gcaactgaa ttcagcagca catcaaaaag 240
ctaattccacc acaatcaagt cagcttcatc cctgcgatgc aagtctgggt caacatatgc 300
aatcaataa atacaattca tcagataaac agagctaaag acaaaattca catgattttc 360
tcaatagatg cagaaaagg 379

<210> 769
<211> 518
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(518)
<223> n = A,T,C or G

<400> 769
cgagggtccat atgatgatca gtctatatag tttaaggcgc agatacacaa attttcaaaa 60
atatgggtag aatatagtca atatgaatgg aatagacaat gctttgaaaa tcaactggagg 120
gaggctttat tgtttgtgaa aacatgttgt catcactttt tgctttaagc ccttggtggt 180
gaaataactc aaaccattct tccttatgct gaagatcgag aaccccaagt atcacatcta 240
ccatcccaact catcaatgtg attggtcagt ctttgctgag gncctgcata gccagtttta 300
aagttagagt tcttgcatat acatatgaaa aggcatgtta cttgtgcttt caaagagcct 360
tttgcttggt gtaaaaagaa aactcaaatt acagtgtgat gtggaatata atggtggttag 420
tttcacgag atgatgggaa agaattgata agataaagcn gaaagatgag cagaattttc 480
agattgggtt tggaagagc acttaagaaa gaggggtgg 518

<210> 770
<211> 378
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(378)
<223> n = A,T,C or G

<400> 770
tatgggtcct gagtgtggaa tataagataa caagacaatt ccttgcttt caagggaaat 60

```

cacactttat aaaactttga attcttgaaa tgggtttcag aggttccaag gtcaaattca 120
agaataagag ttaagaagaa aaagactatg agaaaggaag tgnatgacccc atttgcatct 180
aaatggcagg aatagtctca atctactcat tggggaaaaa tgtatgttgc atatttttga 240
gatattgcaa ctgctctctt ctctttgcca cccaccctt tgnatgctc tgtttttggg 300
ctgaattggc aagaaaaatg gctggagggc tggagaagn tggacccttc ttccttcttc 360
ctctctcttc ctctcttc

```

```

<210> 771
<211> 207
<212> DNA
<213> Homo sapien

```

```

<400> 771
cataaatatt atactagcat ttaccatctc acttctagga atactagtat atcgctcaca 60
cctcatatcc tccctactat gcttagaagg aataatacta tcaactgttca ttatagctac 120
tctcataacc ctcaacaccc actcctctt agccaatatt gtgcctattg ccatactagt 180
ctttgccgcc tgcgaagcag cggtagg 207

```

```

<210> 772
<211> 384
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(384)
<223> n = A,T,C or G

```

```

<400> 772
cctactatgg gtgttaaatt ttttactctc tctacaaggt tttttcctag tgtccaaaga 60
gctgttcttc ttggactaa cagttaaatt tacaagggga tttagagggg tctgnngggc 120
aatttaaagt tgaactaaga ttctatcttg gacaaccagg tatcaccagg ctcggtaggt 180
ttgtgccttc tacctataaa tcttccact attttgctac atagacgggt gtgctctttt 240
agctgttctt aggtagctcg tctgggttctg ggggtcttag ctttggctct ccttgcaaag 300
ttatttctag ttaattcatt atgcagaagg tataggggtt agtccttgct atattatgct 360
tggttataat ttttcatctt tccc 384

```

```

<210> 773
<211> 182
<212> DNA
<213> Homo sapien

```

```

<400> 773
cccttttctt aacactcaca acaaaactaa ctaatactaa catctcagac gctcagggaa 60
atagaaaccg tctgaactat cctgcccgcc atcatcctag tctcctcgc cctcccatcc 120
ctacgcctcc ttacataac agacgaggtc aacgatccct cccttaccat caaatcaatt 180
gg 182

```

```

<210> 774
<211> 191
<212> DNA
<213> Homo sapien

```

```

<400> 774
ccatggctag gtttatagat agttgggtgg ttgggtgtaa atgagtgagg caggagtccg 60

```



```

aggagggttag ttgtggcaat aaaaatgatt aaggatacta gtataagaga tcagggttcgt      120
ccttttagtgt tgtgtatggc tatcatttgt tttgagggtta gtttgattag tcattgttgg      180
gtggtaatta g                                     191

```

```

<210> 775
<211> 192
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(192)
<223> n = A,T,C or G

```

```

<400> 775
ccatgggctaa gntatataga tagctgggtg gctggagtaa atgantgagg nacgagtcgg      60
angagggttag ttgaggcaat aaaaatgatn aaggatacta gtataagaga tcangttcgt      120
cctttacatg ttngtatgg ctatcatttg ttttgaggct agnttgatta gtcattgttg      180
ggtggttaatt aa                                     192

```

```

<210> 776
<211> 144
<212> DNA
<213> Homo sapien

```

```

<400> 776
ctgacccctt agaaccctgg ctctgccatt agctaggacc taagactctg cccacatttt      60
ggctctgttct ctcccattac acatagggtt gtctcagcat gcaagagttt ttcctttaaa      120
aaaaaaaaaa aaaaaaaaaa aaaa                                     144

```

```

<210> 777
<211> 483
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(483)
<223> n = A,T,C or G

```

```

<400> 777
cctactatgg gtgntaaatt ttttactctc tctacaaggt tttttcctag tgtccaaaga      60
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<210> 778
<211> 393
<212> DNA
<213> Homo sapien

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 <223> n = A,T,C or G

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 <213> Homo sapien

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 <212> DNA
 <213> Homo sapien

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 <212> DNA
 <213> Homo sapien

251

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 <212> DNA
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 <211> 364
 <212> PRT
 <213> Homo sapien

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 35 40 45
 Ser Pro Gly Arg Pro Arg Glu Leu Thr Ile Pro Gln Thr Ser Ser His
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 Gly Ala Asn Arg Phe Val Pro Lys Ser Lys Ala Leu Glu Ala Val Lys
 65 70 75 80
 Leu Ala Ile Glu Ala Gly Phe His His Ile Asp Ser Ala His Val Tyr
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 100 105 110
 Gly Ser Val Lys Arg Glu Asp Ile Phe Tyr Thr Ser Lys Leu Trp Ser

252

115	120	125
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Val Ser Val Lys Pro Gly Glu Glu Val Ile Pro Lys Asp Glu Asn Gly		
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Lys Ile Leu Phe Asp Thr Val Asp Leu Cys Ala Thr Trp Glu Ala Met		
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Glu Lys Cys Lys Asp Ala Gly Leu Ala Lys Ser Ile Gly Val Ser Asn		
195	200	205
Phe Asn His Arg Leu Leu Glu Met Ile Leu Asn Lys Pro Gly Leu Lys		
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Tyr Lys Pro Val Cys Asn Gln Val Glu Cys His Pro Tyr Phe Asn Gln		
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Arg Lys Leu Leu Asp Phe Cys Lys Ser Lys Asp Ile Val Leu Val Ala		
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Tyr Ser Ala Leu Gly Ser His Arg Glu Glu Pro Trp Val Asp Pro Asn		
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Ser Pro Val Leu Leu Glu Asp Pro Val Leu Cys Ala Leu Ala Lys Lys		
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His Lys Arg Thr Pro Ala Leu Ile Ala Leu Arg Tyr Gln Leu Gln Arg		
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<211> 6353

<212> DNA

<213> Homo sapien

<400> 784

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<211> 5502

<212> DNA

<213> Homo sapien

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<210> 786

<211> 108

<212> PRT

<213> Homo sapiens

<400> 786

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      20              25              30
Ala Ser Pro Arg Ser Pro Val Met Glu Ser Pro Lys Lys Lys Asn Gln
      35              40              45
Gln Leu Lys Val Gly Ile Leu His Leu Gly Ser Arg Gln Lys Lys Ile
      50              55              60
Arg Ile Gln Leu Arg Ser Gln Val Leu Gly Arg Glu Met Arg Asp Met
      65              70              75              80
Glu Gly Asp Leu Gln Glu Leu His Gln Ser Asn Thr Gly Asp Lys Ser
      85              90              95
Gly Phe Gly Phe Arg Arg Gln Gly Glu Asp Asn Thr
      100              105

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<210> 787

<211> 152

<212> PRT

<213> Homo sapiens

<400> 787

Arg Pro Lys Glu Glu Val Pro Arg Ser Lys Ala Leu Glu Val Thr Lys
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 Leu Ala Ile Glu Ala Gly Phe Arg His Ile Asp Ser Ala His Leu Tyr
 20 25 30
 Asn Asn Glu Glu Gln Val Gly Leu Ala Ile Arg Ser Lys Ile Ala Asp
 35 40 45
 Gly Ser Val Lys Arg Glu Asp Ile Phe Tyr Thr Ser Lys Leu Trp Ser
 50 55 60
 Thr Phe His Arg Pro Glu Leu Val Arg Pro Ala Leu Glu Asn Ser Leu
 65 70 75 80
 Lys Lys Ala Gln Leu Asp Tyr Val Asp Leu Tyr Leu Ile His Ser Pro
 85 90 95
 Met Ser Leu Lys Pro Gly Glu Glu Leu Ser Pro Thr Asp Glu Asn Gly
 100 105 110
 Lys Val Ile Phe Asp Ile Val Asp Leu Cys Thr Thr Trp Glu Ala Met
 115 120 125
 Glu Lys Cys Lys Asp Ala Gly Leu Ala Lys Ser Ile Gly Val Ser Asn
 130 135 140
 Phe Asn Pro Gln Ala Ala Gly Asp
 145 150

<210> 788

<211> 1633

<212> DNA

<213> Homo sapiens

<400> 788

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<210> 789
 <211> 200
 <212> PRT
 <213> Homo sapien

<400> 789
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 20 25 30
 Glu Val Pro Val Asn Phe Ala Glu Phe Ser Lys Lys Cys Ser Glu Arg
 35 40 45
 Trp Lys Thr Met Ser Gly Lys Glu Lys Ser Lys Phe Asp Glu Met Ala
 50 55 60
 Lys Ala Asp Lys Val Arg Tyr Asp Arg Glu Met Lys Asp Tyr Gly Pro
 65 70 75 80
 Ala Lys Gly Gly Lys Lys Lys Lys Asp Pro Asn Ala Pro Lys Arg Pro
 85 90 95
 Pro Ser Gly Phe Phe Leu Phe Cys Ser Glu Phe Arg Pro Lys Ile Lys
 100 105 110
 Ser Thr Asn Pro Gly Ile Ser Ile Gly Asp Val Ala Lys Lys Leu Gly
 115 120 125
 Glu Met Trp Asn Asn Leu Asn Asp Ser Glu Lys Gln Pro Tyr Ile Thr
 130 135 140
 Lys Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Val Ala Asp Tyr
 145 150 155 160
 Lys Ser Lys Gly Lys Phe Asp Gly Ala Lys Gly Pro Ala Lys Val Ala
 165 170 175
 Arg Lys Lys Val Glu Glu Glu Asp Glu Glu Glu Glu Glu Glu Glu
 180 185 190
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 195 200

<210> 790
 <211> 457
 <212> DNA
 <213> Homo sapiens

<400> 790
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<210> 791
 <211> 126
 <212> PRT
 <213> Homo sapiens

259

<400> 791

Ser Pro Val Leu Gly Thr Arg Arg Ser Cys Glu Pro Ala Thr Arg Val
 5 10 15

Pro Glu Val Trp Ile Leu Ser Pro Leu Leu Arg His Gly Gly His Thr
 20 25 30

Gln Thr Gln Asn His Thr Ala Ser Pro Arg Ser Pro Val Met Glu Ser
 35 40 45

Pro Lys Lys Lys Asn Gln Gln Leu Lys Val Gly Ile Leu His Leu Gly
 50 55 60

Ser Arg Gln Lys Lys Ile Arg Ile Gln Leu Arg Ser Gln Cys Ala Thr
 65 70 75 80

Trp Lys Val Ile Cys Lys Ser Cys Ile Ser Gln Thr Pro Gly Ile Asn
 85 90 95

Leu Asp Leu Gly Ser Gly Val Lys Val Lys Ile Ile Pro Lys Glu Glu
 100 105 110

His Cys Lys Met Pro Glu Ala Gly Glu Glu Gln Pro Gln Val
 115 120 125

<210> 792

<211> 461

<212> DNA

<213> Homo sapiens

<400> 792

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 cggcgtcaag gtgaagataa tacctaaaga ggaacactgt aaaatgccag aagcaggtga 360
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<210> 793

<211> 108

<212> PRT

<213> Homo sapiens

<400> 793

Arg Arg Ser Cys Glu Pro Ala Thr Arg Val Pro Glu Val Trp Ile Leu
 5 10 15

Ser Pro Leu Leu Arg His Gly Gly His Thr Gln Thr Gln Asn His Thr
 20 25 30

Ala Ser Pro Arg Ser Pro Val Met Glu Ser Pro Lys Lys Lys Asn Gln

260

35 40 45
 Gln Leu Lys Val Gly Ile Leu His Leu Gly Ser Arg Gln Lys Lys Ile
 50 55 60
~~Arg Ile Gln Leu Arg Ser Gln Val Leu Gly Arg Glu Met Arg Asp Met~~
 65 70 75 80
 Glu Gly Asp Leu Gln Glu Leu His Gln Ser Asn Thr Gly Asp Lys Ser
 85 90 95
 Gly Phe Gly Phe Arg Arg Gln Gly Glu Asp Asn Thr
 100 105

<210> 794
 <211> 970
 <212> DNA
 <213> Homo sapiens

<400> 794
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<210> 795
 <211> 152
 <212> PRT
 <213> Homo sapiens

<400> 795
 Arg Pro Lys Glu Glu Val Pro Arg Ser Lys Ala Leu Glu Val Thr Lys
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 Leu Ala Ile Glu Ala Gly Phe Arg His Ile Asp Ser Ala His Leu Tyr
 20 25 30
 Asn Asn Glu Glu Gln Val Gly Leu Ala Ile Arg Ser Lys Ile Ala Asp
 35 40 45

261

Gly Ser Val Lys Arg Glu Asp Ile Phe Tyr Thr Ser Lys Leu Trp Ser
50 55 60

Thr Phe His Arg Pro Glu Leu Val Arg Pro Ala Leu Glu Asn Ser Leu
65 70 75 80

Lys Lys Ala Gln Leu Asp Tyr Val Asp Leu Tyr Leu Ile His Ser Pro
85 90 95

Met Ser Leu Lys Pro Gly Glu Glu Leu Ser Pro Thr Asp Glu Asn Gly
100 105 110

Lys Val Ile Phe Asp Ile Val Asp Leu Cys Thr Thr Trp Glu Ala Met
115 120 125

Glu Lys Cys Lys Asp Ala Gly Leu Ala Lys Ser Ile Gly Val Ser Asn
130 135 140

Phe Asn Pro Gln Ala Ala Gly Asp
145 150

<210> 796

<211> 2435

<212> DNA

<213> Homo sapiens

<400> 796

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<210> 797

<211> 120

<212> PRT

<213> Homo sapiens

<400> 797

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Thr Thr Arg Pro Arg Thr Arg Gly Gln Arg Glu Ser Trp Arg His Leu
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```

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Ala Ser Gly Ala Gly Val Gly Leu Gly Thr Ala Gly Ser Arg Pro Asp
          20                      25                      30

```

```

Arg Gly Gly Val Gly Gly Glu Thr Arg Ala Ala Leu Ala Arg Ala Pro
          35                      40                      45

```

```

Pro Pro Gly Arg Ala Glu Trp Tyr Gly Pro Ala Gly Val Lys Ala Gly
          50                      55                      60

```

```

Gly Arg Arg Arg Val Pro Arg Arg Arg Arg Arg Trp Gly Cys Val Gln
          65                      70                      75                      80

```

```

Glu Glu Arg Trp Ala Gly Pro Ala Arg Val Gly Gly Arg Pro Arg Gly
          85                      90                      95

```

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Pro Gly Arg Ala Ala Ala Arg Arg Ala Ala Ala Ser Thr Arg Ala Ala
          100                      105                      110

```

```

Ser Pro Arg Cys Thr Thr Cys Arg
          115                      120

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<210> 798

<211> 164

<212> PRT

<213> Homo sapiens

<400> 798

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Pro Arg Val Arg Gly Arg Val Gly Ser Ala Ser His Gly Gly Thr Trp

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263

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<211> 60

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<213> Homo sapiens

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<211> 2477

<212> DNA

<213> Homo sapien

<400> 800

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<211> 1619

<212> DNA

<213> Homo sapien

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<210> 802

<211> 3115

<212> DNA

<213> Homo sapien

<400> 802

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<211> 1238

<212> DNA

<213> Homo sapien

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<211> 4637

<212> DNA

<213> Homo sapiens

<400> 804

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210> 805

<211> 394

<212> PRT

<213> Homo sapiens

<400> 805

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Met Val Thr Met Glu Glu Leu Arg Glu Met Asp Cys Ser Val Leu Lys
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Arg Leu Met Asn Arg Asp Glu Asn Gly Gly Gly Ala Gly Gly Ser Gly
      20              25              30

Ser His Gly Thr Leu Gly Leu Pro Ser Gly Gly Lys Cys Leu Leu Leu
      35              40              45

Asp Cys Arg Pro Phe Leu Ala His Ser Ala Gly Tyr Ile Leu Gly Ser
      50              55              60

Val Asn Val Arg Cys Asn Thr Ile Val Arg Arg Arg Ala Lys Gly Ser
      65              70              75              80

Val Ser Leu Glu Gln Ile Leu Pro Ala Glu Glu Glu Val Arg Ala Arg

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269

85										90					95				
Leu	Arg	Ser	Gly	Leu	Tyr	Ser	Ala	Val	Ile	Val	Tyr	Asp	Glu	Arg	Ser				
			100						105					110					
Pro	Arg	Ala	Glu	Ser	Leu	Arg	Glu	Asp	Ser	Thr	Val	Ser	Leu	Val	Val				
		115					120					125							
Gln	Ala	Leu	Arg	Arg	Asn	Ala	Glu	Arg	Thr	Asp	Ile	Cys	Leu	Leu	Lys				
	130					135					140								
Gly	Gly	Tyr	Glu	Arg	Phe	Ser	Ser	Glu	Tyr	Pro	Glu	Phe	Cys	Ser	Lys				
145					150					155					160				
Thr	Lys	Ala	Leu	Ala	Ala	Ile	Pro	Pro	Pro	Val	Pro	Pro	Ser	Ala	Thr				
				165					170					175					
Glu	Pro	Leu	Asp	Leu	Asp	Cys	Ser	Ser	Cys	Gly	Thr	Pro	Leu	His	Asp				
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Gln	Glu	Gly	Pro	Val	Glu	Ile	Leu	Pro	Phe	Leu	Tyr	Leu	Gly	Ser	Ala				
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Tyr	His	Ala	Ala	Arg	Arg	Asp	Met	Leu	Asp	Ala	Leu	Gly	Ile	Thr	Ala				
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Leu	Leu	Asn	Val	Ser	Ser	Asp	Cys	Pro	Asn	His	Phe	Glu	Gly	His	Tyr				
225					230					235					240				
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				245					250					255					
Ser	Trp	Phe	Met	Glu	Ala	Ile	Glu	Tyr	Ile	Asp	Ala	Val	Lys	Asp	Cys				
			260					265					270						
Arg	Gly	Arg	Val	Leu	Val	His	Cys	Gln	Ala	Gly	Ile	Ser	Arg	Ser	Ala				
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Thr	Ile	Cys	Leu	Ala	Tyr	Leu	Met	Met	Lys	Lys	Arg	Val	Arg	Leu	Glu				
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Glu	Ala	Phe	Glu	Phe	Val	Lys	Gln	Arg	Arg	Ser	Ile	Ile	Ser	Pro	Asn				
305					310					315					320				
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Thr	Ser	Cys	Ala	Ala	Glu	Ala	Ala	Ser	Pro	Ser	Gly	Pro	Leu	Gly	Glu				
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Pro	Val	Ser	Val	Gly	Val	His	Ser	Ala	Pro	Ser	Ser	Leu	Pro	Tyr	Leu				
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His Ser Pro Ile Thr Thr Ser Pro Ser Cys
385 390

<210> 806

<211> 302

<212> PRT

<213> Homo sapiens

<400> 806

Val Arg Ala Arg Leu Arg Ser Gly Leu Tyr Ser Ala Val Ile Val Tyr
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20 25 30

Ser Leu Val Val Gln Ala Leu Arg Arg Asn Ala Glu Arg Thr Asp Ile
35 40 45

Cys Leu Leu Lys Gly Gly Tyr Glu Arg Phe Ser Ser Glu Tyr Pro Glu
50 55 60

Phe Cys Ser Lys Thr Lys Ala Leu Ala Ala Ile Pro Pro Pro Val Pro
65 70 75 80

Pro Ser Ala Thr Glu Pro Leu Asp Leu Gly Cys Ser Ser Cys Gly Thr
85 90 95

Pro Leu His Asp Gln Gly Gly Pro Val Glu Ile Leu Pro Phe Leu Tyr
100 105 110

Leu Gly Ser Ala Tyr His Ala Ala Arg Arg Asp Met Leu Asp Ala Leu
115 120 125

Gly Ile Thr Ala Leu Leu Asn Val Ser Ser Asp Cys Pro Asn His Phe
130 135 140

Glu Gly His Tyr Gln Tyr Lys Cys Ile Pro Val Glu Asp Asn His Lys
145 150 155 160

Ala Asp Ile Ser Ser Trp Phe Met Glu Ala Ile Glu Tyr Ile Asp Ala
165 170 175

Val Lys Asp Cys Arg Gly Arg Val Leu Val His Cys Gln Ala Gly Ile
180 185 190

Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu Met Met Lys Lys Arg
195 200 205

Val Arg Leu Glu Glu Ala Phe Glu Phe Val Lys Gln Arg Arg Ser Ile
210 215 220

Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu Leu Gln Phe Glu Ser
225 230 235 240

271

Gln Val Leu Ala Thr Ser Cys Ala Ala Glu Ala Ala Ser Pro Ser Gly
245 250 255

Pro Leu Arg Glu Arg Gly Lys Thr Pro Ala Thr Pro Thr Ser Gln Phe
260 265 270

Val Phe Ser Phe Pro Val Ser Val Gly Val His Ser Ala Pro Ser Ser
275 280 285

Leu Pro Tyr Leu His Ser Pro Ile Thr Thr Ser Pro Ser Cys
290 295 300

<210> 807

<211> 3829

<212> DNA

<213> Homo sapiens

<400> 807

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<210> 808

<211> 781

<212> DNA

<213> Homo sapiens

<400> 808

```

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gaagagggaac cagcaggctt ccggagggtt gtgtgggtcag tgactcagag tgagaaggcc 180
ctcgaagtgg tegtccctct catgcggtgc caccgccatg gaccttcttg tctcgtcacg 240
gccataacta gggagggaagg agggccgagg agtggaggggg ctccaggcgaa gctgggggtgc 300
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agtcccagga gccagtaat ggagagcccc aaaaagaaga accagcagct gaaagtccgg 480
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acatggaagg tgatctgcaa gagctgcact agtcaaacac cggggataaa tctggatttg 600
ggttcgggag tcaagggtgaa gataataact aaagagggaac actgtaaaaat gccagaagca 660
ggtgaagagc aaccacaagt ttaaatgaag acaagctgaa acaacgcaag ctgggtttat 720
attagatatt tgacttaaac tatctcaata aagttttgca gctttcacca aaaaaaaaaa 780
a 781

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<210> 809

<211> 160

273

<212> PRT

<213> Homo sapiens

<400> 809

Met Arg Cys His Ala His Gly Pro Ser Cys Leu Val Thr Ala Ile Thr
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Arg Glu Glu Gly Gly Pro Arg Ser Gly Gly Ala Gln Ala Lys Leu Gly
 20 25 30

Cys Cys Trp Gly Tyr Pro Ser Pro Arg Ser Thr Trp Asn Pro Asp Arg
 35 40 45

Arg Phe Trp Thr Pro Gln Thr Gly Pro Gly Glu Gly Arg His Glu Arg
 50 55 60

His Thr Gln Thr Gln Asn His Thr Ala Ser Pro Arg Ser Pro Val Met
 65 70 75 80

Glu Ser Pro Lys Lys Lys Asn Gln Gln Leu Lys Val Gly Ile Leu His
 85 90 95

Leu Gly Ser Arg Gln Lys Lys Ile Arg Ile Gln Leu Arg Ser Gln Cys
 100 105 110

Ala Thr Trp Lys Val Ile Cys Lys Ser Cys Ile Ser Gln Thr Pro Gly
 115 120 125

Ile Asn Leu Asp Leu Gly Ser Gly Val Lys Val Lys Ile Ile Pro Lys
 130 135 140

Glu Glu His Cys Lys Met Pro Glu Ala Gly Glu Glu Gln Pro Gln Val
 145 150 155 160

<210> 810

<211> 624

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(624)

<223> n=A,T,C or G

<400> 810

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 aacaggatgc cgaggaggca ggggtgagca ccgatgccgg cggccactat gactgcccgc 180
 agcgggcccgg ccgccacgag tacgcgctgc ccctggcgcc cccggagccc gagtacgcca 240
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 ggcctcccagg gcccagccc ggccacaaac actccctctc ctcgggcggc ttctcccccg 360
 tagcgggtgt gggcgcccag gacggagact atcaaaggcc acacagcgca cagcctgcgg 420
 acaggggcta cgaccggccc aaagctgtca gcgcctcgc caccgaaagc ggacacctg 480

```

actctcagaa gcccccaacg cateccggga caagtgcag ctattctgcc cccagagact 540
gcctcacacc cctcaaccag acggccatga ctgccctttt gtgaacacaa tgtgaaagaa 600
gcctgctgtg gtactgagcg tcgg                                     624

```

```

<210> 811
<211> 572
<212> DNA
<213> Homo sapiens

```

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<400> 811
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acggcctgga gcaggcgctg cggaggcgcg agagcgagca cgagaggag gtgcgcgctc 180
tgtacgagga gacggagcag cttcggggagc agagccggcg cccgccgagt cagaacttcg 240
cccgcgggga gcggagaagc cgtctggagc tggagctgca gatccgcgag caggacctgg 300
aacgcgcggg cctgcggcag cgggagttag agcagcagct gcacgcccag gctgcggagc 360
acctggaggc acaggcccag aactcccagc tgtggcgggc gcacgaggcg ctgcgaacgc 420
agctggaggg ggcgcaggag cagatccgca ggctggagag cgaagcacga ggccgccagg 480
agcaaaccca acgagacgtg gtcgccgtct ccaggaacat gcagaaagag aaagtcagcc 540
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```

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<210> 812
<211> 594
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(594)
<223> n=A,T,C or G

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<400> 812
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gctgccgagg gccgcgggt gtacgtggtg gacgacgcag ctgtcctggg cgcagaggac 180
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cctggccgga acgtcagtg gtgttggcgg ccacgcgctg aggaggacgg gagagcccag 480
gcggcgggga gcagcgtcct cagggaaactg catactgcgg actctgtagt aaatggaagt 540
gcccaggccg acgtacccaa ggaactggag cgagaagaat ccggggctgc ggag                                     594

```

```

<210> 813
<211> 561
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(561)

```

<223> n=A,T,C or G

<400> 813

```
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tagatgaagc caaacattgt tggaggtact gaaatcttag actccaccat gtgtccagga 120
nccattgac gtctctctct ctgaaaactc cgtgtggccc tcgctctgca ctgtcatgag 180
gcggtgatgg agctagatac ccaccacgga caatgatcat cagtttgggg ttctctgggt 240
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ttaatccgaa atgtgttaan tcgancacat ggggtccacgt ccaggacagc tcccacgaa 480
ctctcnaggc tctctanctc agggatgaag gaggtnaagt gatcgatnct cacaagcgan 540
agctctcgcn cnatatctgc g                                     561
```

<210> 814

<211> 307

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(307)

<223> n=A,T,C or G

<400> 814

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cccttcanag ccctagtcac aggcnnacagg gntgttttgt aantttaaant ttcnggaaaa 240
tngngtntt tntgcattca anagaagggn tgccaaangn ggggtattgc ttctgggtgg 300
nttacc                                     307
```

<210> 815

<211> 784

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(784)

<223> n=A,T,C or G

<400> 815

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aagatgcatg ttttgcatgt cttttcttgt gtgacgaaa gagtcaacat gcagatacga 540
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caatatgttg agatgtgcta ttttgaccac acttattcat cttggtcagg gattangagc 660
agacagcaag acctgtccct ttctgtctcc agttattcac tgagtaccag atgtttcaca 720
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gccttcncat gtttatTTTT ctggaaaatg ggtaaaaaat atnggtanga acctttggga 780
aaac 784

<210> 816

<211> 813

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(813)

<223> n=A,T,C or G

<400> 816

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agcagctgct gccagagccc tcttgtagct tctttatttt ctgtttcttt ccagctttcc 180
tacctctcta tcccccttg tgtttggggc acaattttga aataattttt attataggta 240
tgtgtgtcca aagccagatt tttataaggt aaaataaatt aagaatttaa acagtataag 300
ccagtgtctc aaaatgtcag cattataaat tgaaggggac agcaggggtg gaaccggaaa 360
cacacattgc caaacagttg ccaactgaac tgctgtctct catggtcctg tcttttcttt 420
gaccttaagg tcaatgccag tgccagagc agcagtgtag aaaagctccc tgtgtgggtt 480
gtcgtgaggt ctgcttgtat ctcttcaact gcgttagttt cattagctct ttattctctt 540
tacgttcgag tgaatctgcc aagaacactg gtggatagta ttatcctaac acctttgggt 600
tggggggcgg gaggggggcag ggaatagtga gctggcttta ccaccttcag gatctcgaat 660
tgggcgcttg aacctaaaga agattgtgga cttatcaaaa gtcaccgctc agtgttcgtc 720
aagcatgtat ttatgtgaac atcatactag ggaggggatg gttgggaatt cttccatgtg 780
caaatttngn ccgcgaanaa gcaaaaactg ng 813

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<210> 817

<211> 229

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(229)

<223> n=A,T,C or G

<400> 817

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gcttgtaacc tccatacatg gcctccattt tcaactgttt tnttggtcac anagctccaa 120
acanacacat ttttttttcc aggtaaaagc tgtttttagt ttgtagtaca aatgtgactg 180
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<210> 818

<211> 781

<212> DNA

<213> Homo sapiens

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<222> (1)...(781)

<223> n=A,T,C or G

277

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<400> 818
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tcttcacatc acgtcctgac ccaggteact gcataaataa gtgctttgga aagtattcat 180
ctagaaagta acataaatac tgtacataga aaaggggtgc cgcctcttag ccttcgcact 240
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tggtggcctt ctaccangga tgccttcaca aggatgagac agaatcccaa tggtatgccc 480
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gnaantcttc aaanccttta ccaccacttg atgaccnanc atttttangg cctggcttga 720
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a

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<210> 819
<211> 199
<212> DNA
<213> Homo sapiens

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<220>
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<223> n=A,T,C or G

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<400> 819
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gttcttttgg gtcgggcag

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<210> 820
<211> 211
<212> DNA
<213> Homo sapiens

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<220>
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<222> (1)...(211)
<223> n=A,T,C or G

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agacagtntc ntgtgtgtct ctctgtctcn aagtacnnc tgaggnatct gntntctgtn 180
tntgngtaca cngtatctct cntggncata t

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<210> 821
<211> 952
<212> DNA
<213> Homo sapiens

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<220>
<221> misc_feature

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<222> (1)...(952)

<223> n=A,T,C or G

<400> 821

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cagcaccaag acgaaatggg aaactacatg tccccagggt cgaggctgca ggggcagact 180
ctggtgtgaa caggggggat gtgaccacct aaggaaaagg tcacacctgt cttggtatca 240
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caggagaggc caattcttac ttgaaagagc aacacctggg ggcgctgctt gccattactt 420
cctcatcttt agcaacacat ttgcttttca aggtgttcc tgtggaaaca cacatacaca 480
tagacacatg cccctcagat gtcccctgcc ccttgattag tagaatgtgg ggtttccaca 540
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cncctagggg accnaaaacc cccntacntg naataacctt ttttttttnn aaccttttan 900
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<210> 822

<211> 587

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(587)

<223> n=A,T,C or G

<400> 822

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actntgttga gaacatanaa ctctgctctc tggctttgct tcanctctg gtgggcnnaa 480
ttctgcttag ccttctncac tntgaaggnt gggctcttaa cttttggatt tttttttcn 540
ggcaggggga accatgaatg gggtagatac ccacncnggg ntttggc 587

```

<210> 823

<211> 264

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(264)

<223> n=A,T,C or G

<400> 823

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ntcnatnct actangncaa actgactccg cctnagnca cctngtggtc canggetgcg 60

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gagctgcgat acagccttcc gcgggtctgn tggaaccccc accntntctg gtgtntntcc 120
ntcccnccccc ccaacccgcc aagggcctgc ctttctnct gggcctttgc cagcgtntgg 180
ccanaccggg gccaaaccgg nccccgggca cattttaacc nagggcnenc ttntagaana 240
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```

<210> 824

<211> 520

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(520)

<223> n=A,T,C or G

<400> 824

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gttaacaaaa taggaaantc tattngaact aacaatcatc tctttgaatc tgcntatccc 180
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acaaacctaa ncaaccanca gatatacttg anggntcttc ctgtnatttc tcagattcca 360
atataccatt ttgccttnac acctacagcc cttaggggca tctctnttcc ncanaacaaa 420
ncaatntcac taagacagnc tggggtnntn caccaatggc taccaaacct ctgncgcgna 480
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```

<210> 825

<211> 2064

<212> DNA

<213> Homo sapiens

<400> 825

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<210> 826

<211> 2109

<212> DNA

<213> Homo sapiens

<400> 826

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taagacttt 2109

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Met Val Thr Met Glu Glu Leu Arg Glu Met Asp Cys Ser Val Leu Lys
5 10 15

Arg Leu Met Asn Arg Asp Glu Asn Gly Gly Gly Ala Gly Gly Ser Gly
20 25 30

Ser His Gly Thr Leu Gly Leu Pro Ser Gly Gly Lys Cys Leu Leu Leu

Asp Cys Arg Pro Phe Leu Ala His Ser Ala Gly Tyr Ile Leu Gly Ser
50 55 60

Val	Asn	Val	Arg	Cys	Asn	Thr	Ile	Val	Arg	Arg	Arg	Ala	Lys	Gly	Ser
65					70					75					80

Val Ser Leu Glu Gln Ile Leu Pro Ala Glu Glu Glu Val Arg Ala Arg
85 90 95

Leu Arg Ser Gly Leu Tyr Ser Ala Val Ile Val Tyr Asp Glu Arg Ser
100 105 110

Pro Arg Ala Glu Ser Leu Arg Glu Asp Ser Thr Val Ser Leu Val Val
115 120 125

Gln Ala Leu Arg Arg Asn Ala Glu Arg Thr Asp Ile Cys Leu Leu Lys
130 135 140

Gly Gly Tyr Glu Arg Phe Ser Ser Glu Tyr Pro Glu Phe Cys Ser Lys
145 150 155 160

Thr Lys Ala Leu Ala Ala Ile Pro Pro Pro Val Pro Pro Ser Ala Thr
165 170 175

Glu Pro Leu Asp Leu Gly Cys Ser Ser Cys Gly Thr Pro Leu His Asp
180 185 190

Gln Gly Gly Pro Val Glu Ile Leu Pro Phe Leu Tyr Leu Gly Ser Ala
195 200 205

Tyr His Ala Ala Arg Arg Asp Met Leu Asp Ala Leu Gly Ile Thr Ala
210 215 220

Leu Leu Asn Val Ser Ser Asp Cys Pro Asn His Phe Glu Gly His Tyr
225 230 235 240

Gln Tyr Lys Cys Ile Pro Val Glu Asp Asn His Lys Ala Asp Ile Ser
245 250 255

282

Ser Trp Phe Met Glu Ala Ile Glu Tyr Ile Asp Ala Val Lys Asp Cys
260 265 270

Arg Gly Arg Val Leu Val His Cys Gln Ala Gly Ile Ser Arg Ser Ala
275 280 285

Thr Ile Cys Leu Ala Tyr Leu Met Met Lys Lys Arg Val Arg Leu Glu
290 295 300

Glu Ala Phe Glu Phe Val Lys Gln Arg Arg Ser Ile Ile Ser Pro Asn
305 310 315 320

Phe Ser Phe Met Gly Gln Leu Leu Gln Phe Glu Ser Gln Val Leu Ala
325 330 335

Thr Ser Cys Ala Ala Glu Ala Ala Ser Pro Ser Gly Pro Leu Arg Glu
340 345 350

Arg Gly Lys Thr Pro Ala Thr Pro Thr Ser Gln Phe Val Phe Ser Phe
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Pro Val Ser Val Gly Val His Ser Ala Pro Ser Ser Leu Pro Tyr Leu
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His Ser Pro Ile Thr Thr Ser Pro Ser Cys
385 390

SEQUENCE LISTING

<110> Corixa Corporation
 Wang, Tongtong
 Sangur, Chaitanya S.
 Lodes, Michael A.
 Fanger, Gary
 Vedvick, Tom
 Carter, Darrick
 Better, Marc
 Mannion, Jane

<120> COMPOSITIONS AND METHODS FOR THERAPY AND
 DIAGNOSIS OF LUNG CANCER

<130> 710121.478PC

<140> PCT

<141> 2000-06-29

<160> 627

<170> FastSBQ for Windows Version 3.0

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<210> 2

<211> 490

<212> DNA

<213> Homo sapien

<400> 2

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ctcaggcttg	ggttgtcaac	tatgcataag	ttccggccagt	gctgaggggt	gtgaggctct	420
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agctcttccg						490

<210> 3

<211> 464
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 <213> Homo sapien

<400> 3

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aactacaaga	cggtagggc	tttggagag	accttgagga	aggcgtctcc	cgatggttat	180
gattgttatt	ttgataatgt	aggtggagag	ttttcaaaac	ctgttatcgg	ccagatgaag	240
aaatttggaa	ggattgccat	atgtggagcc	atctctacat	ataacagga	cgcccaactt	300
ccccagggc	ccccccaga	gattgttatt	tatcaggaga	ttcgcatgga	agcttttgtc	360
gtctacgct	ggcagggaga	tgcgcgcga	aaagctctga	aggccttgc	gaatgggtc	420
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<210> 4
 <211> 510
 <212> DNA
 <213> Homo sapien

<400> 4

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<210> 5
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 <212> DNA
 <213> Homo sapien

<400> 5

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cctggttgc	gagagggagg	cggaagccaa	gttcaatcat	ctcctttatt	tggtagctca	300
tgtgagtact	ggttccaagt	gacatgaacc	agcattatg	tttacagctc	ggactctcga	360
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cttcccttaa	aggcaattga	cactcatttt	tt			452

<210> 6
 <211> 336
 <212> DNA
 <213> Homo sapien

<400> 6

tatagagtgc	tgaacatcga	cattgagaaa	ttcatgccta	tgtttatata	tcccactgtg	60
ggtctggctt	gccaacaata	tagtttgggt	tttcggagag	caagaggtct	ctttattact	120
atccacgata	gagggcatat	tgcctcagtt	ctcaatgcct	ggccagagga	tgtcatccag	180
gcattgtgg	tgaatgatgg	agagcgtatt	cttggcttgg	gagaccttgg	ctgtaattgga	240

atgggcacac	ccgtgggtaa	attggctcta	tatacagctt	ggggagggat	gaatctctaa	300
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<210> 7
 <211> 376
 <212> DNA
 <213> Homo sapien

ctgtgggaaa	cctcattggt	ctgtacaaag	tactagctaa	accagagagg	tgattccagg	60
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atatctttgg	ataatgttat	tctatatttt	tatttttttt	ccttggaggt	taccaaatta	180
agatggtaag	acctctgaga	ccaaaatttt	gtcccatctc	tacccctca	caactgttta	240
cagaatggt	cctgtccccc	tctgtttggg	gtgcccactt	aattgcttcc	ctgctctctt	300
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tcattacact	ttcttg					376

<210> 8
 <211> 406
 <212> DNA
 <213> Homo sapien

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agaacaggtg	agtctagaag	tccactctg	aaaaggacca	ctgtacattt	gaacacacgg	120
ctgtcttaaa	gatgtgtcta	atctcagctc	ctgggtgccc	tacaggatct	cttactttat	180
gtaaaacgtt	gggattgaca	agatagctct	gtactctgtt	taagttaccc	tctgagctca	240
cttcttgtag	actactaatg	ccagcatcat	cctgccaagc	gaaagaggca	ggcataagca	300
aggacacatt	aaaagggggg	aagagcctta	tcattgatga	gaatcttggt	tlgacatctt	360
gggaaasgct	gtccatagtg	tgaagtcgtc	aatttccac	cctggt		406

<210> 9
 <211> 330
 <212> DNA
 <213> Homo sapien

actactacca	agagctgcag	agagccattt	ctgaatgttt	tttgcagatt	cataaacagg	60
ggggctttct	gggctctctc	aataattagt	tcaggccagg	atctgtggtg	gtacaatttg	120
ctctggcctt	ccggagaggt	acctacattg	tccagcagct	ggagacacag	ttcaatcagt	180
ataaaacagg	agcagcctct	cgatatcccc	tgaagatctc	agagctccgc	gtgagtgatg	240
tggcattctc	tttctctgac	cagtctgggg	ctgggggtgc	aggctggggc	atcgcgctgc	300
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<210> 10
 <211> 449
 <212> DNA
 <213> Homo sapien

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ggggatgtgc	tacagctga	aatcagttgt	ccttaatttt	tagnaagatt	ttggtaacta	120
ggtgtctcag	ggctgggttg	gggtccaaag	tgttaaggac	ccctgccttt	agtggagagc	180
tggagcttgg	agccattccc	ccttcattcag	aaggaatttt	cggatgtttt	cttgggaagc	240
tgtttttggt	cttgggaagca	gtgagagctg	ggagctttct	tttggctcta	ggtgagttgt	300

catgggggta	agttgaggtt	atcttgggat	aaaggggttt	ctaggggcaca	aaactcactc	360
tgggtttata	ttgtatgtcg	cttatacttt	ttactaaggt	gtcacccttat	aagcctctat	420
aaattgaggt	ctttttctta	gttgtatgg				449

<210> 11

<211> 478

<212> DNA

<213> Homo sapien

<400> 11

cctcgatgca	tgctgtctta	cctctcatca	gccacacgtc	tgacaagagg	tcatctttgg	60
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aaaccttggg	ggataagaca	gccacacatg	gttcaggctg	ttaggtgtcc	actgtcacag	180
tccaaagagg	aagggtacgc	ctccaaaggg	gcagcttaag	ccacacagta	agacttgggc	240
acgatgaaag	gacggggggt	caggtacgaa	tgttttttgt	cttgatgtca	agttgcacgc	300
tactgggaag	caggagcagt	ttctttcttt	tcccactctg	tgctgggtac	ttgggagagg	360
cgacataaat	accagactgt	ccactctctc	gcctaaaggt	ctctcgaagt	cctgcacact	420
cagcacttgc	tctttaacgt	ggcatatgtt	ccccatcttt	cccttggtaa	tg	472

<210> 12

<211> 371

<212> DNA

<213> Homo sapien

<400> 12

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gtccacaggt	acctaccccc	tggactgtag	caacttttatt	accttaacta	gcacacacaa	180
gaggttgatt	taaaactcctt	acaactcactt	ctccatctcaa	tgactgggca	aacaaacccc	240
tcatggctct	gggaaggcat	gctgaraccc	gttttttgcaa	gtcttgagga	atgggaacct	300
atagctgcca	ggtatcccaa	gtctcaggga	gggagggkag	tctcggcctc	actttcactg	360
cattctgttg	g					371

<210> 13

<211> 493

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(493)

<223> n = A,T,C or G

<400> 13

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aggtgccaaa	tcccaggaca	ggcatgaagt	gacctcattt	cagcttcaca	cactgatatt	180
tggactccat	ttctglennn	nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnnn	240
caacctgtct	ctcattattg	taaacatgtg	cagaatcaat	atggcggaac	ccagcttcta	300
ttgtactttt	tgtgacctcc	aaagctttac	ttctcggaac	cttggctctt	ccaggcagctc	360
agcaatcccg	ccgagcttct	ttgagacgtc	ctcaggtgtc	ctttgacgat	gagtcctcca	420
ctttcacaca	ctctagcatt	ctttcaactg	ggctttcttt	gcacacacatt	gggcagccca	480
gaatgttggg	gtg					493

<210> 14

<211> 540
 <212> DNA
 <213> Homo sapien

<400> 14

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ttaaaattat	gaccacggct	ccttccaggc	gatgtggcac	tttcccatc	ctgtaccatg	180
tgatattgac	atctggataa	ctgtctctct	aaatgcagtc	acccaacttt	cttagctgct	240
ctgtttcgag	aaacagtgct	ttgtttacaa	tttccagggtt	agctgggttc	ttgaacacct	300
tgactattgt	agtgacctca	aaacagttgt	cctcagttac	tgcatgcac	acaaatctct	360
tttcatcact	gttctttgca	ttcttgctag	acaaagtgtc	gtttctctgag	aggttccatc	420
tgtctttgta	ttctggtaca	tgctgtact	gcacactttt	ctttctctgag	gatctgaagg	480
ccctaaatcc	tggggagccc	tggggctttt	catatttcca	tttgcccaaa	catgagattc	540

<210> 15
 <211> 421
 <212> DNA
 <213> Homo sapien

<400> 15

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atctcttctt	ccttgggact	ggggccagcc	tcttgctctg	ccacttcccc	ctcatttagtc	180
agatagcccc	aaaggctcta	tcttttagctc	ccagagaact	ttttggctct	cagtatttcc	240
cttccccctt	cttctcatt	ccccaccact	gggggaggga	agggagaaca	ggggcacttg	300
atctctctat	tccccgccc	ctctcttgaa	gcccccctaga	tttggatgaa	gagcaggcca	360
gtgagccagg	caaagcctgc	taggagcaga	atgaccttga	ggatcctttg	ctcagaactg	420
g						421

<210> 16
 <211> 236
 <212> DNA
 <213> Homo sapien

<400> 16

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gctgaccccc	acgagctgct	ctctgtgggc	ctgcttcact	tcctccgaga	ggccgtaacc	120
gaagtggctc	attcttttgt	ctgaaggagc	gacaggagca	tctacgggtg	agaagacaga	180
aagtttgggt	tgttcgatgt	cttgcctgtg	gaattttcca	gacttagccc	agtcca	236

<210> 17
 <211> 424
 <212> DNA
 <213> Homo sapien

<400> 17

ccagaaaggt	gacagtggtt	ctccaggggc	tccctgggct	ccaggtccac	ctggtgaggt	60
cattcagcct	ttaccaatct	tgtctcccaa	aaaaacgaga	agacatactg	aaggcatgca	120
agcagatgca	gatgatcata	ttcttgatta	ctcggatgga	atggagagaa	catttggctc	180
cctcaattcc	ctgaacacag	acatcgagca	tatgaaattt	ccaatgggta	ctcagaccac	240
tccagcccca	acttgttaag	acctgcaact	ccagccatct	gacttccccc	atggtgata	300
ttggattgat	cctaaccacg	gttgcctcag	agattccttc	aaagtttact	gtaatttccc	360
atctggttgt	gagcttggca	tttatccaga	caaaaaatct	gagggagtaa	gaatttcttc	420
atgg						424

<210> 18
 <211> 154
 <212> DNA
 <213> Homo sapien

<400> 18
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 aggacaattg aaatttgcta aaggggaagg ggaaggaag ggaagagga gaaagagaaa 120
 cccagagcac ttaaggaca ggaagggagg atgg 154

<210> 19
 <211> 445
 <212> DNA
 <213> Homo sapien

<400> 19
 caacaaaaatt ggtgaacaca tggagaagaca tggcctcagg tttataagac agttcgtacc 60
 aattcaagtt gaccagctt ggcaggggc accaggcaga ctacagctag tagctcagtc 120
 caccactagt gaggaaatca ttgaaggaga atataatacg gtgatgctgg caataggag 180
 agatgcttgr acagagaaaa ttggctttaga aaccgtaggg gtgaagataa atgaaaagac 240
 tggaaaaata cctgtccacg atgaagaca gaccaatgtg ccttccatct atgccattgg 300
 cgatatattg gaggataagg tggagctcac ccaggttga atccaggcag gaagattgct 360
 ggctcagaga ctctatgcag attccactgt caaagtgaga ctctgaaat gttccaccca 420
 ctgtattttac tcccttggaa tatgg 445

<210> 20
 <211> 211
 <212> DNA
 <213> Homo sapien

<400> 20
 ggggagcact gcttgcttga aagcaatttc tgaacctaca gaagttgggt attgtctgaa 60
 atccacagag gcccataagt ggcggtgaca agctgtctgt caggggagag gctccagAAC 120
 ctgggttctg cccagtgag accggaggat gatccccaa ggactggca gactcagctc 180
 ttgttgggac tctgcttct ctctgtttg 9 211

<210> 21
 <211> 396
 <212> DNA
 <213> Homo sapien

<400> 21
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 aaagattgat cgcgcttctg gtaaaagat ggaagatggc cctcaattct tgaagtcagg 120
 tcatgctgac attgttgata tgggttcctg caagcccctg tctgttgaga gcttctcaga 180
 ctatccacct ttgggttctt ttgtgttctg tgatatgaga cagacagttg cggtyggtgt 240
 cctcaagcca gtggacaaga aggtcctctg agctggcag gtccaccagt ctgccacaga 300
 agctcagaag gctaaatgaa tattatccct aatccctgac accccactct taatcagttg 360
 tggaaagacg gtctcagAAC tcttcttctt aactgg 396

<210> 22
 <211> 277
 <212> DNA
 <213> Homo sapien

<400> 20

ggaaacatgt	ggcggggcc	cttgatcgtg	ggggggggga	tgtgggggaa	ctccttcacg	60
aagcgggcaa	tctgtctccc	gctgtccccc	tacttcacta	accaggggcc	gggtgtgcac	120
tccctcttct	ggttgaggga	atccgcccc	ccctcctccc	ccatgaaatt	gcaggccatg	180
tctacatctc	cattatctaa	taggatctgg	gatttctgtg	agctcagcag	cttcagatcc	240
tgggagtttc	tgcctcggta	gagcggggg	tactgata			277

<210> 23

<211> 631

<212> DNA

<213> Homo sapien

<400> 23

tctgacactc	cattctcaat	gttctcattt	aaacactaac	cagcatcatt	gtttataatc	60
agaaactctc	gtccttctgt	ctggtgggac	ttagagtcct	tgtgcccata	atgcagcagt	120
atggaggggag	gattttatgg	agaaatgggg	atagttcttc	tgaccacaca	tacataaagg	180
aaaactaagc	tgcatttgga	gttttgaaaa	gggttatttc	cttcttcaca	attctttttc	240
tcagggaactt	ttctagctgt	atgactgtta	cttgaccttc	tttgaaaagg	attcccaaaa	300
tgcctctatt	tagatagatt	acccttcacc	accataattt	tttttagctc	gagtcagcat	360
aaattttctaa	gtcagctctc	agtctgtggt	cctctctttc	acctgcatct	tatttgggtg	420
ttgtctcagc	aggggaaaa	ggagagcaaa	taagcaattg	actatttgta	ccaaatcttt	480
gggatttcctt	ggcaataaat	ttcagtgctg	tgtattatta	aatcgaaaaa	aaaaattttc	540
tttcttaggt	tgaaggctca	attgatacgt	ttgacttatg	atgaccattt	atgcactttc	600
aaatgaattt	gttttcaaaa	tacatgaaaa	gcag			634

<210> 24

<211> 512

<212> DNA

<213> Homo sapien

<400> 24

gcaaaaacaa	cctaagcaag	cacacggag	ggcagaagtc	agtgcaatta	aaaaggaggaa	60
aaagagcaat	cctcacaatc	ataaaaagtc	atttctttga	aaagatcaat	gaatttttag	120
aagactgaca	cagataaaaa	ggaatttagc	cccaatcagt	gaacaggagt	gaaatcagg	180
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gtgctcaca	atttgacaat	gtagaggaaa	tatcttttag	tttaattcag	tttctattct	300
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tytaggcata	cctcagagac	ghgggggact	tggtttcaga	ctactgcaat	aaaccaata	420
tggcaatcaa	aggagtcaaa	gaaagtgggt	tcccagtgta	tatatataaa	agttacattt	480
actctctgaa	gtgcattcac	attctgctca	aa			512

<210> 25

<211> 461

<212> DNA

<213> Homo sapien

<400> 25

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aaagaacact	cgtgggtgggt	tagtcatgag	gttaetattc	ccctcttgct	caactccaca	180
ctggagaaac	caggtttggac	tgagttttga	ggagcaaaag	actaatcact	tgaccaagag	240
ggcctgttat	ccccacaagc	cctgggtatt	tttctctcct	agaggggaga	gggtctgtat	300
ggatccctga	aaatgtgatt	ttatatattc	ctggcatcca	ggggagaaaa	atcaaaagac	360
aaaggaggtta	cagttatctc	ccccgaactt	aatgggtcat	gtcaagacta	caggttttca	420

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461

<210> 26

<211> 317

<212> RNA

<213> Homo sapien

<400> 26

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taggatttat	cacactctaa	aaactttagt	ttttgaaag	aaataggaga	atacagaaac	120
atgaatttca	cgaggctatc	atctaacagt	ggggcctttc	tacacacgtg	gtgcacaaat	180
gtgtccttct	gagtccttgc	caattcctct	ctgggggtga	aaagagataa	aagataagcc	240
aagaaccttg	gacagattct	tgggtgttgt	gacaaagagg	aaaggacctg	agaatggggc	300
tggtggggag	agggggg					317

<210> 27

<211> 250

<212> DNA

<213> Homo sapien

<400> 27

taattgtgtg	gattattaga	attctatcat	gaatgtattg	taatttttgc	tctatttccg	60
ataagcmaga	tataagaagt	tatcaaaact	attctttaaa	atgctaaagc	aggtaacctt	120
ttcttccatt	atttttctct	cttaccactg	agttttgttg	tgaattcctt	glttatccaa	180
gcaatacagg	tgaatactaa	actgttattt	ttagcttctt	caaaagctat	tttagaagag	240
ttcttggaag						250

<210> 28

<211> 532

<212> DNA

<213> Homo sapien

<400> 28

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tgctgtctcc	cttgcaacaa	ctctgaccaa	gatttgcattg	ccctatgttg	ctttgattca	180
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gcatttggga	aaatcctctc	ctctaaagaa	gcacatttct	gctgatgatg	tggttcgaat	300
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ccaaagaaa	gaatctgaaa	agagggaatgt	gacagtacag	cttgatgacc	ccatttctct	480
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<210> 29

<211> 486

<212> DNA

<213> Homo sapien

<400> 29

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ttgatctccc	acaccaaag	agaasataat	atttatatgg	aagtcaattt	atttttgtgt	180
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aaatacattg	ttaaggttcc	aaagaataat	tcaatttttc	agcattttca	agcaacatat	300
tctacaacct	caacgatatt	tgcacaaata	ctacacactg	tgaagtccaa	atgttatgga	360

aagaaacatt	agaggtatga	aaagtggtag	aaaaacatgt	ttctttttat	tcctttggat	420
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atctac						486

<210> 30
 <211> 240
 <212> DNA
 <213> Homo sapien

<400> 30						
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gggttctata	actgcaccc	ccacacatct	ttcaccacca	ccccatcat	accagctctc	180
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<210> 31
 <211> 233
 <212> DNA
 <213> Homo sapien

<400> 31						
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tgtcagcaa	gttgtggccc	actttctttg	agagacccct	tgtgaaggaa	gcctttgaga	180
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<210> 32
 <211> 233
 <212> DNA
 <213> Homo sapien

<400> 32						
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ggcttggggt	caagaaacag	ccagcaaggc	ttaggggctt	tagggcactg	ggctgttgtt	180
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<210> 33
 <211> 319
 <212> DNA
 <213> Homo sapien

<400> 33						
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catgatggct	tcaggattcc	aaagcaggtg	agagtagagc	ctgaaagact	ctttgagttc	180
ttggccttga	actgggacta	ggacagtgtc	actctctcta	agttcttttg	gtcagagcaa	240
atcacaggc	tttaccacaa	ttcaagggat	gagaaacaga	ctacatgtct	tgatgggggg	300
acccacaaag	agcttgttgg					319

<210> 34
 <211> 340
 <212> DNA
 <213> Homo sapien

<400> 34

tacagattta	attcatgtta	ttaactccct	gccttttacc	tctccctcc	tcccttggca	60
caactggcag	atggatctga	ctggaaagtc	ggggacattc	tctggggctc	gtggagctag	120
ggtaaaatg	acctcagcgt	gacagcaaac	aggacagaga	agaccaggct	cttactcagg	180
actccaccag	ccaggagcct	gacactgttg	accacccgga	ccctgatgat	atctgtcaca	240
tttgtaaagt	tgatttcaga	gtcaggagtg	gagacatcgg	tcgttgacct	gggtggagct	300
tgggtccacg	ctcaggagct	ggtatcgagt	gggcacacag			360

<210> 35

<211> 170

<212> DNA

<213> Homo sapien

<400> 35

acatgggtcc	ttaactcttc	gctgagatgt	tggggcagcc	ttttcttcca	atggagttgt	60
ggcaggagaa	tccacggata	taattgtttc	accttcttcc	ctggaggtgc	ttttgagggc	120
accagycctt	aagaggtggg	gtcttggatt	cttgacccag	gggtccggca		170

<210> 36

<211> 475

<212> DNA

<213> Homo sapien

<400> 36

ctgttttttg	acttaattta	ccattggcag	tggaaaccac	gaataatttg	tagcataact	60
ctctctattg	kaatgtttgt	tctttctgca	aatatatctt	agaagttaga	ctttaaacct	120
ttgatctccc	acacccaaag	agaaataaat	atttatatgg	aagtaatttt	atcttagtgt	180
tttgtattta	ttgtggagag	cagggtgtta	caatttttga	actttcttca	acaaattctc	240
aaagagaaaa	taaaaaagaa	atcacagtat	ttacagagat	aacagagatg	cttagccatg	300
caaaacaaat	acttttgggt	tttcccttct	tacttttggt	taaatgttga	ccasgatcca	360
atctttcttc	ctgcacaaata	aaacttcaat	aaaagttagg	agggcaaaata	acgtattttc	420
ttttttctcc	ataatatttt	atcacagctc	gagttctaaga	atattttatg	cattt	475

<210> 37

<211> 246

<212> DNA

<213> Homo sapien

<400> 37

cccttgagctt	gggcagggca	ctgaggcgcc	ccacatattg	tggagagcgg	gggaacggct	60
ccaggcagcc	aggggctagg	acctcctgga	tcaggcagca	gtccagcagg	ttgtagtccg	120
cgaaggagct	ctggtctccc	acaatgaagg	tcttgctctc	ctggtctcgg	gacagcaggg	180
tctcaaaagg	cttcagttgc	cagggcagtg	cttcacata	gtcatccttg	ccacactcat	240
agtttg						246

<210> 38

<211> 512

<212> DNA

<213> Homo sapien

<400> 38

gctggaagtg	aaatgcagat	cagacccatt	gtgatgtcac	agaaagatgg	ggcagggcca	60
agaaacaaag	tgactttcaa	ctcttcttcc	atcattttta	tcacacacag	tgatgastca	120
ctgtcagttg	acgacagcga	caaaacccat	gggtccaaag	ctgatgtaat	ccaaagtctg	180
cttctgtagg	aatgaggaat	ggcaacgaaa	gagggggcct	caaattggat	gccacttttg	240

gaatttcac	ataagaagt	tctggaatac	cagttctatg	taatatccac	agaaacctgt	300
ggctccagtag	gaactccgaa	tbgcccatat	gctcttgggc	ctcaggaaga	ggttgaacaa	360
aaacaaattc	ttttaattcc	acgggtgctt	tacataatga	aaaaaacact	tgttggccac	420
gatggccatc	tacacatc	atcttctaat	gtgttggaga	ttttcatttc	aaatacattt	480
tttaattac	tctattttcc	aaaacacgta	at			512

<210> 39

<211> 370

<212> DNA

<213> Homo sapien

<400> 39

ttttatgaac	aagatataag	gatacaaaaa	aagggtgttg	atatgttttt	ccaggcagag	60
atgtactcga	ctctgacctc	tttagccttc	ccatacctga	cttctaatac	cttttctctg	120
tgcctctyca	tctccctaac	ccccctccc	agggatgctt	ctccccagg	ctccagaaac	180
tctgaccttc	gcactgcttg	agggagccca	tgaattgctg	gtcaatatcg	ctcatctctt	240
akaactcatt	ctgctgtgtc	ttcttctctc	agggcctaga	ggggcactga	ctgataaata	300
cctgtcacct	gcctctttcc	cagagggtga	aactccaccc	actccactg	cagaaatgaa	360
tcttaattgg						370

<210> 40

<211> 204

<212> DNA

<213> Homo sapien

<400> 40

cctgagggtt	ttccctttta	attttcaattg	agttgtccat	ctccagcata	tagggtctca	60
ggagccagagc	agaccttgtt	tttagtgggt	ccatgggata	aaatgggatt	ggaggagcta	120
gaagaattca	gggtcttggtc	caatctgcca	gtcttctcga	aatatcgaaa	atacaccagg	180
gctgtctatc	cagagccacc	ctgg				204

<210> 41

<211> 447

<212> DNA

<213> Homo sapien

<400> 41

caggcagcca	ttcgtacaga	attcaatgag	tacaaaagta	atgaaatgga	ggtacatgca	60
tcaagcaagc	acttgacaag	attccacagg	ccatagagat	ttctctctga	gaagaatttg	120
tgtttcaatt	tttgcaccca	caactgaaca	ttcatcaggg	aactttcctg	aagttcagct	180
caagactacc	ctacctgctg	tgtttgtgag	aagagttaga	tcaacacac	aggtgcaatc	240
ttgaccacac	ttacctgcca	gaggagtaac	cagaggacac	acttcccttc	ttctttgggtg	300
tctgaggagt	gtgcaactgtt	gggttcagtt	aagacccaac	ataactctat	cagaagazaa	360
ctgttggttg	cccttcaacc	ctgtttthaca	gtcttgcagt	gtagtggagg	acggggcaacg	420
tgcattgtga	ggctcaccac	tcccagg				447

<210> 42

<211> 498

<212> DNA

<213> Homo sapien

<400> 42

ctgggtttgt	aaaaacagtc	tctttattct	actgtgctga	aaacctcacc	aatatagaaa	60
attagattct	cattgcactg	aactatcttt	atacgcccaa	gtatgtagaa	gtcaaatctat	120
ataccccana	aggtttttat	cttgttgtat	atattaaatg	ttattttctg	atatagggtc	180

ttttttgggg	aaactggatg	tgttaaggctt	aatactcaat	tgttttagcag	catctgaatg	240
cacaaatgct	ttatatatct	cttctgcttt	acaggggaaa	agatcagaat	ctgttttctt	300
atagttcttc	cagagccagcc	aggactcaat	attctctctc	ctgaattcag	acttttaggaa	360
acttccaaa	acattttgac	cagtttggtt	ggcaagaaat	ttttccagag	attgagaccc	420
ttccattact	tcagccagcc	aaagtacatc	cttggacctg	gaagatttcc	ttccagattc	480
cagatgtggg	atccataga					499

<210> 43
 <211> 312
 <212> DNA
 <213> Homo sapien

caggaaggcg	gccaagaaatg	tgagtgcac	gatttggttc	tgagagcccc	gagaaagaaa	60
ttcatgacag	tgtctgggct	gccaagaaag	cagtgcacct	gtgctcattt	caagggaact	120
gtgaagaaaa	caagacacca	agggaaccac	agaaagccaa	acaagcattc	cagagcctgc	180
cagcaatttc	tcaactaatg	tcagctcaga	agctttgctc	tgcctttgta	ggagctctga	240
gggcccactc	ttccacttaa	scattctcag	ccsagaagac	agtgagcaca	cttaccagac	300
actctctctc	tc					312

<210> 44
 <211> 417
 <212> DNA
 <213> Homo sapien

ctaacacatt	tactctcac	tattcgctact	ctggtagcca	tgttaacccc	atcagagatt	60
ccttctcag	ccatgtctca	gagctgagag	gcctccagc	aggttttgca	gctccacagt	120
ttttccgtaa	attacttatt	ctataaaaatt	ggagtaggcc	ataaactttg	gagggcccta	180
gacaaatttc	ttggatatt	tttcgtcttc	tatcattccg	ctgatcttag	atattctctg	240
cattaaatat	taattatcac	ctctaggctg	aaaaatcccc	ctaaaaatct	ttctagctca	300
gatttttccc	ccaaattctg	caatagaaga	tcacaatgtg	aactctgcac	ctccatgtta	360
aagttctaatg	gacattcaca	cttagcaatgt	ctcaagaaa	tctctgttaa	accatgg	420

<210> 45
 <211> 494
 <212> DNA
 <213> Homo sapien

cggtgtgtctg	tggatatgtg	acacgtgcac	gttctgcacg	tctgtagggtc	acacatgctt	60
tgggtgcacgt	acacgtgtgt	gtgtgtctgc	gtgtaggagc	tcacacttgc	gtacacgtct	120
gtgtgcacgc	atgtgtgcag	gagcttgca	gtttgtggtg	ggtacatgta	catatgtgag	180
tgatcctgtg	tgcagcccc	cagtgtgaca	tggctatgag	tgaagctgaa	gccaacagcc	240
aggtaacacg	catgcagcag	gccaactgtg	cgtgtctgag	acggctctgtg	gcagggaactg	300
ggtgtgaatc	atgcagcagg	cccaactctgc	gtgtctgaga	cggctctgtg	caagggaactg	360
gtgtgacctc	gtgacccgtg	ctctgaccaa	catgctgaat	tacaaactga	taatttatta	420
acctgtgcag	caacaaataa	gatttttcaa	aactcaacaa	agtgcctcaa	gttgacatta	480
cttgccttcaa	agtt					494

<210> 46
 <211> 516
 <212> DNA
 <213> Homo sapien

<400> 46
 ccagtcacaa ctagctctcca ttattgtata aatgagcaga atctatatgg cgggaccccg 60
 ctctctattg taattttgtg acctccaaag ctttacttct cgggaacctc tcttttggcc 120
 gtcatcttat cattcaaccc ttgttcagtg gaaactcccg ctatttttgt gtgttggttt 180
 gttactacac agtgagccac aacatgggtg tccaatccag aggtctcttc tgtcaggtgt 240
 caaccagaaa gttcatctaa cactgtgata ttgtcctctc tcttgaacag ttgttggttg 300
 aagattcttt tgatgaatcg atttctcaca agagatgatt cttggttctt ccgagcgttc 360
 agctctcccg ccgagcttct ttgagacgtc ctacaggtgt ctttgaagat ggtcctccc 420
 ctctcacaca ctctagcatt ccttccacgg ggtcttcttt gcccacacat ggcgcgcag 480
 gaatgttggg gtgatcagac acaacaccag gtcattg 516

<210> 47
 <211> 459
 <212> DNA
 <213> Homo sapien

<400> 47
 ccaattcaga atggaattct gcatctctgt ggctcccaag tcttgaaccc tcaactgaca 60
 tatagcattg ggcacactcc agcagagccc cgaattcaca tcttgaaggg atggaagaaa 120
 cgccttgagg atctttgggg kgagccacca ctgtattttg ctccaagcag cctctttgac 180
 ctaaacttcc aggcaggatt cttaatgaaa aagaggttcc aggatgagga gaaaacccag 240
 aactttggcc ttctgtgggg ccatacattg ggcaagtcca tcccaactga caaccagatc 300
 aagctagaaa aatgagattc cttagccttg atttctctct aacatgttat caactctggg 360
 tatctttcca ggcttccctg aattgcttta gtttttaaga ttgtgtttt tcttttccca 420
 caaggcaaac atgagagggg atcgakcaa aaaaaaaa 459

<210> 48
 <211> 430
 <212> DNA
 <213> Homo sapien

<400> 48
 ccttatattca gccacagcct ctgggagtgg tcttgataat cggagctctgg aattaccctt 60
 tcttcttccc ccttcagcca ctgataggag ccatacctgc aggaatgct gtgattataa 120
 agccttctga actgagtgaa aatacagcca agatcttggc aagcttcttc cctcagtatt 180
 tagacaggga tctctatatt gttattaatg gtggtgttga ggaaaccaag gagctcctga 240
 agcagcgatt tgaccacatt ttctatacgg gaaaacactgc gatttgcaca attgtcatgg 300
 aagctgctgc caagcatctg accctgttga ctcttgaact gggagggaaa agtccatgtt 360
 attctgttaa agattgtgac ctggaccttg ttgcagacg cataacctgg ggaataaca 420
 tgaattgtgg 430

<210> 49
 <211> 288
 <212> DNA
 <213> Homo sapien

<400> 49
 ccatacgaag caagattkca gatggcagtg tgaagagaga agacatattc tacacttcaa 60
 agctttggwg caatttccat cgaacagagt tggatccagc agccttggaa agtctcctga 120
 aaaaacttca atttggattat gttgacctct accttattca ttttccagtg tctgttaagc 180
 caggtgagga agtgatcccc aagagatgaa atggaaatat actatttgac aaggtggatc 240
 tctgtgcacg gtggggaggc rtggagaagt gtaagatgc aggattgg 288

<210> 50
 <211> 411

<212> DNA

<213> Homo sapien

<400> 50

ccagagaatg	acattcatgt	ccccgtggat	cccttgccaga	gagtcacatgg	agccactgcc	60
accagtcgtg	atgggaatgca	ctgccttcctt	ccctgggag	gctcttttgc	ccatcatgga	120
agcgttaagt	taagcaaaact	ctcctatgaa	cactcgcctca	aaccagcctt	tcagaatggc	180
agggactcca	aaccactgca	gggggaaatg	gaatatccca	aggtctggcg	cttccagcct	240
ctcttgctca	gcacaaatat	ctgggctcag	atggccttct	ttataagcca	gaacagactc	300
ggcaggatcc	tgaaggttcg	caggctcctt	cagtttacct	gtgatgtcct	ttctggaaat	360
gacgggattg	aagttcatgg	catagagggtc	cgactccacc	acctcccatc	c	411

<210> 51

<211> 503

<212> DNA

<213> Homo sapien

<400> 51

gatatcttat	gattaaaaac	aaattaaatt	ttaaaacacc	tgaagatata	ttagaagaaa	60
ttgtgcaccc	tcacaaaaac	atacaaagtt	taaaagtctg	gactcttttc	tcagcaggta	120
tcagttgtta	ataatgaatt	agggggccaa	atgcacaaacg	aaaaatgaag	cagctacatg	180
tagttagtta	ttctctagtt	gaactgtaat	tgaatattgt	ggcttccatc	gtattatttt	240
atcttgtact	tttttcatta	ttgatgggtt	ggactttta	aagagaaatt	ccatagtttt	300
taatatccca	gaagtggagc	aatttgaaca	gtgtattcta	gaaaaccata	caataactga	360
acagaagtga	atgcttatat	atattatgat	agccttaaac	ctttttccct	taatgcctta	420
actgtcaaat	aattataaac	ttttaaagca	tgggactata	gtcagcatgc	tggactgaga	480
ggtaaacact	gatgcaatta	aga				503

<210> 52

<211> 503

<212> DNA

<213> Homo sapien

<400> 52

gatatcttat	gattaaaaac	aaattaaatt	ttaaaacacc	tgaagatata	ttagaagaaa	60
ttgtgcaccc	tcacaaaaac	atacaaagtt	taaaagtctg	gactcttttc	tcagcaggta	120
tcagttgtta	ataatgaatt	agggggccaa	atgcacaaacg	aaaaatgaag	cagctacatg	180
tagttagtta	ttctctagtt	gaactgtaat	tgaatattgt	ggcttccatc	gtattatttt	240
atcttgtact	tttttcatta	ttgatgggtt	ggactttta	aagagaaatt	ccatagtttt	300
taatatccca	gaagtggagc	aatttgaaca	gtgtattcta	gaaaaccata	caataactga	360
acagaagtga	atgcttatat	atattatgat	agccttaaac	ctttttccct	taatgcctta	420
actgtcaaat	aattataaac	ttttaaagca	tgggactata	gtcagcatgc	tggactgaga	480
ggtaaacact	gatgcaatta	aga				503

<210> 53

<211> 531

<212> DNA

<213> Homo sapien

<400> 53

ttcttttttt	ttttttaa	gaggatattt	tattatttca	ggtaattttc	ccagaggkga	60
gaatagtaca	tgggaatttc	tccttaggac	aggtctagta	ttacagkgtg	gkgtctcagg	120
ccggccatca	gaacagtgat	actctcccaa	cagatttcat	ccaccccgct	tcacttaact	180
tttgccataa	aaattccctc	gaattgtatc	ttcttgggag	aagtacatat	ctgttcgaact	240
atacaaagaa	acagagaaac	cactcccatc	gcattcaatc	ttcaagagag	ggagccaggca	300

agccggtgthc	tttctgctga	gtttttataga	ctctgacaag	ctgtgaaata	aacataaaca	360
gaagacaaa	cagtgcacac	aataagcagt	agatgacct	gtgacaaagc	ggcattgcag	420
saacaaggact	gcggtttaaa	ggggagtcac	gcagagtaac	atgggaacac	aagcctgaca	480
acctgggtcag	cttcacatta	ctctagctcc	tttgaaactc	caaacataaa	a	531

<210> 54

<211> 450

<212> DNA

<213> Homo sapien

<400> 54

ccatgggtgt	ctggagcacc	ctgaacctgt	atcauagttg	tacatatttc	caaacctttt	60
taaaatgaa	aggcaacttc	gtgtctctcc	cactctgtgc	actttgctgt	tggtgtgaca	120
aggaatttaa	agatgtttct	ggcattttct	ttttatttgt	aaagtgggtg	taactatggt	180
tattggctag	aactctgag	tttcaactg	tatatatctc	tagtttgtta	aaagaaacaa	240
acaaacgaa	caaacctctg	atgctccttg	ctcggcgttg	aggtctgggg	gaagatgact	300
tttgggagag	gtgttagctc	agggcgctga	ctgtgagggt	ggacctgttg	actctgcagg	360
gggcctccct	ttagcttcag	gttctcttgc	ttctgtctac	agtgcacatg	cattctgctg	420
ccatctttagc	tgtggacaaa	ggggggctcag				450

<210> 55

<211> 648

<212> DNA

<213> Homo sapien

<400> 55

caacttcac	cacaggctgc	tggcaatgat	cctccaracag	ccagggcctc	agtacaagcc	60
tgtctgcac	cagctggaat	gtcctcctta	cttcacccag	agaaaaactg	tggattctctg	120
caagtcaaaa	gacattgttc	tggttgctta	tagtgctctg	ggatcccaac	gagaaagacc	180
atgggtggac	cggaactctc	cggctgtctc	ggaggaccca	gtccttctgt	ccttggcaca	240
aaagcacaag	cgaacccacg	ccttgattgc	cctgcgctac	cagcttcacg	gtggggttgt	300
ggtctctgct	agagcctaca	atgagcagcg	cctcagacag	aacgtgcagg	tgtttgaatt	360
ccagttgact	tcagaggaga	tgaagccat	agatggctta	aacagaactg	tggatatttt	420
gacccctggt	attctctgctg	gccccctaa	ttatccattt	cttgatgaat	attaacctgg	480
agggcattgc	atgaggtctg	ccagaaggcc	ctgctgtctg	atggtgcac	agaggaatgg	540
tcctatgctgg	tgactggaca	cctgcctctc	ggttaaatct	ctcctgcttg	gygayttcag	600
caagctaacg	caaaacccat	tggcaggaaa	aaatatccag	ggtcaact		648

<210> 56

<211> 536

<212> DNA

<213> Homo sapien

<400> 56

ctggcatgag	aattattttt	tttttaagtg	cggtagtttt	taaactgttt	gtttttaaac	60
aaactataga	actcttcctt	gtcagcaaa	caagagttca	ctgcattccat	gaaagttcaa	120
gaactctctg	taattaaaca	cgaatcccaa	cgtctctgtta	tttttttgtt	atgttttagaa	180
tgttgaaatg	tttttgagtg	taactaaaca	gtattacatt	tttaaaactc	ttctctctta	240
taacagtcaa	tttctgactc	acagcagtg	caaaacccac	actccctctg	atttggagac	300
tgccctccct	ataaattgtg	tagcttcttt	tattactcag	tggacctgac	cggggcgccg	360
ctcgaagccg	aattccagcc	cactggccgg	cgttccctag	ggatccagac	tgggtaccac	420
gctttggcgt	aattcctggt	atagctgtct	cctgtgtgac	attgtttctc	gtccacaatt	480
ccaccacacc	tcaggagccg	aagcataaag	tgtaaagcct	gggtgctctc	atgagt	536

<210> 57

<211> 391

<212> DNA
 <213> Homo sapien

<400> 57

aggaaatgact	gtcccagagc	tgaggcgaagg	ggatttctca	ggfctcttgg	agaacaagtg	60
cttttagtagt	agtttgaagt	agtaactgct	actgtattta	gtggagtgga	ttccagagga	120
aatttgaaga	ccagatcatg	ggtaggtctgc	stgtgaetga	acaggaatga	gcccgaacagc	180
ctggctgtca	ttgttttctt	ctccccatt	tggaccttc	tctgccctta	caatttttgtt	240
tctccatcta	ccaccatcca	ccagtctatt	tcttctgcta	gttaggttct	atctctctctg	300
gaaattttat	tgtttattgg	catgtgccc	ttgactgatg	gcttcattag	catygtgtt	360
ctcttttctg	atctttaata	gaaaactcca	t			391

<210> 58
 <211> 455
 <212> DNA
 <213> Homo sapien

<400> 58

gaagacatgc	ttacttcccc	ttccctttcc	ttcatgatgt	gggaagagtg	ctgcaaccca	60
gcccagagca	agcccgcatc	agggggagtg	tcccggaggc	ttctgagagc	gtttctctcca	120
catctagaaa	gaagcgctta	agatgtggca	gcccctcttc	ttcaagtggc	tcttgtctctg	180
ttgcccctgg	agttctccaa	ttgtctgcgc	agcctccacc	cagcctgagg	atgacatcaa	240
taccacaggg	aagagagctc	aggaaaagat	gagagaagtt	acagactctc	ctggggcgacc	300
ccgagagcct	accattctct	agattctctc	acatggtgct	aacagatttg	ttcctaaaag	360
tacagctcta	gagggcgctc	aattggccat	agaaagctgg	ttccacccta	ttgactctctg	420
acatgtttac	aataatgagg	agcagggttg	actgg			455

<210> 59
 <211> 798
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (398)
 <223> n = A,T,C or G

<400> 59

ctcagagagca	gcatgaggg	gtgctctttg	tgaacttcca	ccatggagta	ccgtgggcag	60
ggtcagaaag	tgcagaaggt	tatggtgcag	ccctccacc	tcatcttcag	atacttccaa	120
aettagatggc	ggatttcagg	gtggtctctat	gagcaagtg	atatggggat	agaagggctgt	180
atcattgttt	ttgatgagta	tatgaacctt	gtatttagatg	atgcagagga	gattcattct	240
aaaacaaagt	caagcaagca	actngntcgg	atcctgctaa	aaggagataa	tattactctg	300
ctacaaagtg	tctccactc	gaaatgatca	atgaagtgg	aattgttga	gaaggatata	360
gtttgttttt	ggatgacctt	tgtccaatgt	gaacattt			398

<210> 60
 <211> 532
 <212> DNA
 <213> Homo sapien

<400> 60

gaattctgag	acctggggca	cccgggcctt	tggggcagct	actggcaggg	cctgggcacc	60
tcataggact	cagttccctt	ctgaacactc	gggggacatg	ggcctctaac	tgcacactct	120
gatatgcttg	ggtgggcctc	ggggggaggg	ctctgacttg	gatttctcca	gtcaaaagctc	180

acagaaasaaa	acctggcact	ttgatcttca	tgggatggtc	ctaacagggt	cagtcacctc	240
cgagcagttt	gggaacccag	ttctctgtcc	tgggcctcca	ggtcagcctg	gctgaattag	300
gaccccttct	tggcacaggg	gtgagaaaga	gcttggggga	cgcttggcat	tatggagagg	360
tggagggggc	tcaaccccga	tttggagaga	agcttgggat	ggagtggggc	agagattgag	420
agagcgagca	ggaaaagagg	tcttggagcc	tgggactgat	ggtggataag	gcttggaaag	480
aaatagacsa	ggagggagg	agagggaggt	gggtggatga	ggagcaggct	ga	532

<210> 61

<211> 466

<212> DNA

<213> Homo sapien

<400> 61

gggagggaga	cgtctctttt	gactaaasga	cagtgctccag	tgtctccagcc	taggagttcta	60
gggggacccg	ctcccgagcc	gcaacccatga	ccaactttctc	tggcaccctgg	aaactcctcc	120
gatcggasaa	cttcgaggaa	ttgtctcaaa	tgtctgggggt	gaatgtgatg	ctgagggaaga	180
ttgtctgtgc	tgcagcgtcc	aaagccagccg	tgggaatcca	acaggagggg	gacacttbat	240
acatcaaaac	ctcccccacc	gtgggcaccc	caggagattaa	cttcaagggt	ggggaggagt	300
ttgagagaga	gactatgggt	ggggggccct	gtaaagagct	ggtgaaatgg	gagagtgaag	360
ataaatgggt	ctgtgagcag	aagctcctga	agggagaggg	ccccagagcc	tcttggagcc	420
gggaactgac	caagatggg	gaactgaccc	tgaacatgac	ggaggga		466

<210> 62

<211> 543

<212> DNA

<213> Homo sapien

<400> 62

ttttgaatttc	acacacagaa	cttctccata	aaagaaaatc	atgaatcctc	caaatcttca	60
acataccaca	agagaagtta	attctottaac	attgtgttct	atgattattc	gtaagacctt	120
caccacgttc	tgatatcttl	taagagcata	gttccaaatt	gctcttgaaa	atctgtattc	180
ttgaaaatat	ccttgtttgt	tattaggttc	ttaaatacca	gctaaaggat	taactcactg	240
agtcctcagt	acctctctat	tcagctcccc	aagatgaggt	gthtttgcct	acctaagag	300
aggttttctt	cttattttta	gataattcaa	gtgcttagat	aaattatggt	ttcttttaagt	360
gtctatggta	aactctttta	aagaaaattt	aatatgttat	agctgaatct	tttttgtaac	420
tttaaatctt	tctcatagac	tctgtacata	tgttcnaatt	agctgcttgc	ctaatgtatg	480
tatcatcggt	gggatgacag	aacaaacata	tttatgatca	tgaataatgt	gctttgtaaa	540
agattttc						543

<210> 63

<211> 547

<212> DNA

<213> Homo sapien

<400> 63

tttccasagc	ggagacttcc	gacttcccta	caggatggag	ctgggccttg	cctgggacag	60
cctatgtaag	gcatgtgccc	ccttgcctta	acaactcact	gcagtgtctt	tcatagacac	120
ctcttgagag	atttttctta	aggctatgct	tcagtttttc	tttgtagccc	atccaaagcc	180
atagtggtag	gtttgcccct	tgttacagaa	ggtgagttaa	agctggctga	aaaggcttat	240
tgcattgcat	tcaagctcac	ctgtgtgcat	actctagaaq	agtagggaaa	ataatgcttg	300
ttcaattctg	acctaatatg	tgcattgtaa	aataaatgcc	atatttccaa	caaacacagt	360
aattttttta	cagtatgttt	tactaccttt	tgtatctctt	tattgcaatg	ttagtgttgt	420
tttaaatgtt	gatcgaaaat	ataatgcttc	taagaaggaa	cagtatgtga	atgaatgtcc	480
aaaggtctct	taagtgttta	tgtctgccc	aaaggttttt	gtgatgaagg	gggatttttt	540
gacaaat						547

<210> 64
 <211> 528
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (528)
 <223> n = A,T,C or G

<400> 64
 caactmctac caccwgggac ttwctcagac gctttgcaca agggggccgc ccacccccctg 60
 arccatggac cccgctcgcc cactggggmt gtygatkctg ctgcttttcc taccckgaggc 120
 tgcactgggc gatgctgac argagccaac aggaataac cgggagatct gkctcctgac 180
 cctagactac kgacccctgc kggccctact tytcogytac tactacgaca ggyacacgca 240
 gagctgcgc cwgctcctgk rckggggctg crasggcaac rccacacatt yctacacckg 300
 kgaggmctac gackatgctw gatggargat agaaaaagtt cccaaaattt gccggctgma 360
 agtgaatgag gacnccccgg gtgaggggta cccagataag tattcttttc atctaakkwc 420
 catgacatgw gaaaaattct ttncggctg gngtcacgg accggattga gaacangttt 480
 gcagatgag ctactgggac gggctcctgc ccacnccgga aactatca 528

<210> 65
 <211> 547
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) ... (547)
 <223> n = A,T,C or G

<400> 65
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 gactcaagt tgtcagcac ccaatatctt aaaggagagg agatgatttg taccacaatg 180
 tgcacgctc attagttgg tcactgggtg gctttgagat ggatattact cacttggatg 240
 gtccacaggt acatatcttc cgggataaga tcaccaggcc agggagcgaag ctatggagga 300
 aaggggaggg gctcccaac ttgcaaca acaatatcaa gggctctttg ataattcact 360
 ttgatgtgg ttctccaaa gacacgttaa caggggagc gagagaangt atcaaacagc 420
 tactgaaca agggtcagt cagaaggtat acaatggact gcaaggatat tggaggtgaa 480
 taacatttgg ctttgtttaa acacagtgga ataacggata ttatttctct gcaagggttt 540
 ttttgtg 547

<210> 66
 <211> 535
 <212> DNA
 <213> Homo sapien

<400> 66
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 gcaccggccc ctccacggcc ggttggtggc ctgcgtgaca gtttcctccc gtccacatcg 120
 aaaggagccc ggacgtgggc gggnagagag ctccatcgca gtaggaatgg cagccccatc 180
 tatgaagga agacaggtct gctggggggc cgggatgag tactggaggt gtttagatga 240
 gaacttagag gatgcttctc aatgcaagaa gtttaagaagc tctttcgaat caagttgtcc 300

ccaacagctgg	ataaatatatt	ttgatataaag	aggagactac	ttaaatcccc	aggaaaaatt	360
tgaagcagge	caatttccgc	cttcagaaac	aactgcaaaa	tactaggctg	ttcatanaaga	420
ttgaagatcat	tctttctgga	cattgaaaaa	gctccactga	ctatggaaac	gtactagttt	480
gaatcatagt	gaacatccct	acttggtccc	tatatccgac	acttgataat	taaga	535

<210> 67

<211> 527

<212> DNA

<213> Homo sapien

<400> 67

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ttcatcttct	acaggccctt	cttagctctc	aaacttgacc	gtggaaataa	gaatgtttt	120
ttcaaattctg	cattgcgcgt	gagatcccca	acatcagcat	gttgagatgg	acctcaaccc	180
ccctctctac	ccctgcaaac	actacccgat	attatcttag	gtatgtttta	gggttttagt	240
tgtaaatcaa	taattttatt	ttgaaggaaa	tataaatatt	taaaagataa	taataagctat	300
cattttttta	gattcaatct	aaaacaattg	actctttttt	ttccatttg	tgatgtagat	360
aagcagagca	gttttgcata	tgagtgggtg	aaagagagtc	aaacttgact	attcttgccc	420
tggcagtcga	gcaacaagcc	tttcatttac	attaaattat	aactttccat	tcatttctaa	480
accaaactta	aaattctgct	ttcttttgag	tgaagagtat	ttacttc		527

<210> 68

<211> 431

<212> DNA

<213> Homo sapien

<400> 68

gggaacttc	atgggtttcc	tcattctgta	tgtcgatgat	tatatatgga	tcatttcaaa	60
aaacacaaa	gcgggaattt	tccttctgct	tgaatattat	ccctgtatat	tgcattgaatg	120
agagatttcc	catatttcca	tcagagtta	aaatataact	gctttaattc	ttaaagcataa	180
gtaaacacga	cataaaaata	tatgctgaat	tacttgtaga	gaatgcattt	aaagctattt	240
taaatgtgtt	tttatttgta	agacattact	tatttagaaa	ttggttatta	tgcttctctgt	300
tctaattctg	tggttaagggt	attcttaaga	atttgcaggt	actacagatt	ttcaaaactg	360
aattgagaaa	aattgtataa	ccctctctgt	gwtcttttag	tgcatacaaa	taaaactctg	420
aaattaaaaa	t					431

<210> 69

<211> 399

<212> DNA

<213> Homo sapien

<400> 69

gacacggcgg	acacacacaa	acacagaaac	acacagccag	tcccagagag	ccagtaattgg	60
agagccccaa	aaagaagaa	cagcagctga	aagtcgggat	ctcacacctg	ggcagcagac	120
agaagagat	caggatacag	ctgagatccc	agtgcgcgac	atggaaagtg	ctctgcagga	180
gctgcattcag	tcaaacacag	gggtataaat	tggatttggg	ttccggcgct	aaggtgaaga	240
tattacctaa	agaggagaaa	tgtaaaatgc	cagaagcagg	tgaagagcaa	ccacaaagttt	300
aaatgagagc	aagctgaac	aacgcaagct	ggttttatat	tagatatttg	acttaaaacta	360
tctcaataaaa	gttttgcaga	tttcaaccac	aaacaaaaaa			399

<210> 70

<211> 479

<212> DNA

<213> Homo sapien

<400> 70

cgaggcgagg	ctgtgagcgg	gggactcggg	tccttgaggct	ctggattctt	tctccgctac	60
tgagacacgg	gggacaccca	caaacacaga	accacacagc	cagtcacagg	agcccagtaa	120
tgagagagcc	caaaagagag	aaccagcagg	tgaaagtogg	gctcctccac	ctgggcagca	180
gacagagaga	gacagagata	cagctgagat	cccaggtgct	gggaaggga	atgcgcagca	240
tggaaggtga	tctgaaagag	ctgcacagct	caaaacagg	ggatccctct	agatttcagt	300
tcgggcgtca	aggtgaagat	aatacctaaa	gaggaacact	gtaaaatgcc	agaagcaggt	360
gaagagcacc	cacaggttta	aatgaagaca	aactgaaaca	acgcagctg	gttttatatt	420
aggatacttg	acttaacta	tctcaataaa	gttttgcagc	tttcacaaa	aaaaaanaa	479

<210> 71

<211> 437

<212> DNA

<213> Homo sapien

<400> 71

ctcagcgggt	gccaacagat	catgagccat	cagctcctct	ggggccagct	ataggacaa	60
agaactctca	ccaaagagcc	agacacagtg	ggacccatgg	gacagtgctg	gtcagccaa	120
gcagagagatg	ctcagggaatt	cagtcatgtg	ggaggggcca	ttgagacct	catacagaac	180
tttccacaght	actccgtggg	gggtgggag	gagagctga	cccttctga	gtacggggac	240
ctggtaaccc	agcagctgcc	ccctctcctg	cagagcaact	gtggcctgga	aaagaaactt	300
gcacacacgg	ggagctgcaa	tgactctaaa	ctggagttca	ggagtttctg	ggagctgatt	360
ggagaggggg	ccagaggtgt	gaagctggag	agcctgtccc	gggggcctg	aggaactcct	420
ctgggaattct	tgggggg					437

<210> 72

<211> 561

<212> DNA

<213> Homo sapien

<400> 72

ggagggata	ctgtaaattc	agcatatggg	gataccatta	tcataccttg	ccgacttgac	60
gtacctcaga	atctcatggt	tgccaatgg	aaatatgaaa	agcccgatgg	ctcccagta	120
tttatgtcct	tcagatcttc	tacaaagaaa	agtgtgcagt	ccgacgatgt	accagaatac	180
caagacagat	tgacctcttc	agaaaactac	actttgtcta	tcagcaatgc	aaggatcagt	240
gatgaaaga	gatttgtgtg	cattgttagt	actgaggaca	ccgtgtttga	ggcaactaca	300
atagtcagg	tgctcaagac	accatctaaa	ccctgaattg	taagcaagc	actgtttctc	360
gaaacagagc	agctaaaaaa	gttgggtgac	tgcatctcag	aagacagtta	tcagatggg	420
aatctcacct	ggtacagggc	tggaagagtg	ccacatcccc	ttgaaggagc	ggtggctata	480
atttttaaaa	aggaaatggc	cccagtgact	cagctctata	ccatgaecttc	caaccgggag	540
tcagagctaa	cccaggctga	c				561

<210> 73

<211> 916

<212> DNA

<213> Homo sapien

<400> 73

ggagaaata	aggtggagtc	ccacttgltt	aaaaaatatg	taactaagaa	tattctaggg	60
caactctggg	acctataaag	gcaggtatct	cgggccctcc	tcttcaggaa	tcttctgaa	120
gacatggccc	agtcgaaagg	ccaggaatgg	ttctgtctgg	cccccgtagg	gtggggggga	180
cagagagaca	gggagagtea	gcctccacat	tcagaggcat	cacaagtaat	ggcacaattc	240
ttcggatgac	tgcaagaaat	agtgttttgc	agttcaacca	ctcaagagca	agcttatctc	300
tgaggataag	ctcttttaag	gcgaagcttt	attttcctct	gtcatctttt	gtctctctta	360
gcacatgla	aaaaagacta	gtactatcag	aacagggaagg	aggaatggct	tgctggggag	420

ccatccagg	acactggggg	cacatagagg	ttcaccgatg	tttgttgaac	tttagagtcac	480
tctcatgctt	ttctttctaa	ttcacacata	tatgcagaga	agtatatgtc	ttgttcaact	540
tgtatacaac	atagcccca	atatagttag	atctatacta	gataatccca	gatgaaatgt	600
tagagatgct	atatgataca	actgtggcca	tgaatgagga	agggagctca	cgcccccaga	660
ctgggtgctt	ctcccgagg	cccccaccca	gaaggtctgg	caaagtcagg	ctcagggaga	720
ctctgcccgt	ctgcagacct	cggtgtggac	acaagctgca	cagagctctc	cttgaacaca	780
gaggggtctc	aagacattct	gcttacctct	tggctttctt	ctcttttttt	aacttttttg	840
ggggaagg	atttttgaga	agtttgtctt	gcattgtatt	tataaatagt	aatataggct	900
tttaccatta	aaaaaa					916

<210> 74

<211> 547

<212> DNA

<213> Homo sapien

<400> 74

sgtggcctta	acttttagaa	tttgggctgg	tgagattaat	tttttttaat	atcccagcta	60
gagatatggc	cttttaactga	cccaagaggg	tgtgttgtga	tttaattttt	tccggttcc	120
ttttcttcag	taaacccca	aatagtctaa	cttcaaaaat	tgagttgatg	tccttatagg	180
tcactacccc	taataaccc	tgaagcagg	gtttctctct	ggacatacta	aaaaataact	240
asaaggagc	ttagatgggc	tgtgacacaa	aaaattccat	tactgtctac	taatgcacg	300
tgttaaaagt	gtggccactg	agcttttctt	tttctagga	aaatagttat	ttttgagaat	360
aacatagctg	tgttatgtca	cattctgttg	ggacatccc	agatttgtct	atctcagtg	420
ctgtgttat	tgaatttag	gatttgggg	aggggttaatt	attaaacata	ttgtttctat	480
tcttggaaaa	atagaagkgt	aaaatgttaa	taatacaaat	gtcactgtga	ctctctccc	540
tgagagg						547

<110> 75

<211> 793

<212> DNA

<213> Homo sapien

<400> 75

tgggaaggtt	gcaggccac	aaaaaagttc	aaggatctag	aagacgatta	aggggaaggtc	60
gttctcagtg	aaatcccaa	aaccagaaaa	aatgttttat	aaaacctaa	gtccatcaac	120
tggccttaga	aaattgtgag	agccaagttag	acttcaggaa	ctgaacatc	agcacaagga	180
agccatcctc	aaataattct	gaacacaaat	ttatctttt	ttttctgga	tgagaaacat	240
gagggaaatt	gtggagttag	ctctctgtgg	agtttagcctc	ctgtggtaaa	ggaattgaag	300
aaatatatac	accttaacac	ctttttctatc	ttgacattaa	aagttctggc	taacttttga	360
atccattaga	gaaaaatcct	tgtcaccaga	ttcattacaa	ttcaaatcga	agagtttgtta	420
actgttatcc	cattgaasag	acggagccct	gtatgtatgt	tatggataga	taaaatgcac	480
gaaagccatt	atctctccat	gggaagctaa	gttataaaa	taggtgtctg	gtgtacaaa	540
cttttttatat	caaaaggctt	tgcacatttc	ctatagagtg	gatttactgg	taaatatgt	600
tattttttag	aactaatttt	gtactttcag	aatgtttgtc	atctgcttct	tgcattgcct	660
atttttttaat	ctcaaacgtt	tcaatcaaac	cattttctcag	atataagag	aattacttca	720
cattgagtaa	ttccagaaaa	ctcaagattt	aagttaaaaa	gtggttttga	cttgggaaca	780
ggactttata	cct					793

<210> 76

<211> 461

<212> DNA

<213> Homo sapien

<400> 76

accttgcaat	attcccctca	gtccatctat	cgaggtcttt	ggaggaagca	tactgggaat	60
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tgaacagaga	gactaactga	catctaagaa	aggaagtgtt	caataccagg	tattaggtga	120
ggatgggatt	ctaaggacat	caatgggagg	gaggggggca	ccttcagacc	tcaggcatgg	180
agcttcacag	atccagagga	agaggcaaca	gcactggag	tactaggtag	aagaatcctc	240
acagccctgc	taacagggc	gctgagggcc	ctctcccttg	gctccctgtg	tcacacatcct	300
acaggggcat	ctgttggttg	aactcaacct	gaagcccaag	aggagatgag	tggagagggg	360
caacatttat	aggggctcag	ctccctaggc	tgagggggca	caagggggca	ctccctcttg	420
acaccttgga	taacaaaaa	atgattaaaa	aaaaaaaana	a		480

<210> 77

<211> 642 <212> DNA

<213> Homo sapien

<400> 77

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gctatgagac	taactattgt	agatattgca	ccctatgaca	ttggtagtcc	tgatcaaga	120
tttgggtgtg	acgttgggcc	tggtttgctt	ttatcaacca	aactctatct	gaatcccaa	180
caaaaaaact	ttacctccat	atgtgttctc	cttgtttcaa	tctgttcaac	caatggcaag	240
gacccgacaa	attccagtta	tttatttcca	aaatgttttg	aaacagbata	atttgacaaa	300
caaaaaatgt	acttctcttt	ttttgttgt	cccccacata	caattcaact	gcttttttgt	360
ttattttttt	acaaattcca	atttcaaaat	gtctcaatgg	tgctataata	actaaccttc	420
aacactcttt	atgataacaa	aaaaaarsaa	watcttttga	atcctagccc	ctctgagag	480
caatgactgt	gctcaccagt	aaaggtatac	ctttctttct	gaatagtcac	aatacgaact	540
tagaaaagcc	ctccctattt	taactacctc	aactggtcag	aaacacagat	tgtattctat	600
aggtcccaaa	agatgaaaaa	aattttatat	cttgtataaa	ct		642

<210> 78

<211> 519

<212> DNA

<213> Homo sapien

<400> 78

gcagagagag	aagcggaccc	tcggcaagtt	caactacccc	gggttgagcc	tcgacacagc	60
gctgggacat	tcctacagag	agctgagcca	gctgtacagt	ggcggccagc	ggcgggggct	120
gaacccgggc	ctgcggcgga	agcagcaact	cctgctgaag	ggcctggcca	agcccaagaa	180
ggaggggccg	cccatgggga	agccgggaag	ggtgaagagc	caactggcgg	acatgatcat	240
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ggagatcaag	cccgagatga	tgggcacata	cctggggcag	ttctccatca	cctacagacc	360
ggtaaaagcat	ggccggcccg	gcattggggc	caacccactc	tcacggcttc	tcctctctca	420
gtaattggct	agctaatcaa	agggcgcacat	gactccaaaa	aaaaaaaaaa	aagggggggc	480
ggcaccggcg	gggggctcaa	cttttgttcc	ctttcaatga			519

<210> 79

<211> 526

<212> DNA

<213> Homo sapien

<400> 79

gtctgagagg	gggtgctctc	ccgcctctgc	aggtcctcga	tgagtagcag	ttataggtcc	60
ggctacagcc	tgatctctta	tgtgttcaata	gccattcctc	ctcccatcag	aactgtttgt	120
cctgaatctg	ttcctctagt	cttagaaaat	gacaaactaat	ttaaaanaact	cgttgtctga	180
gtttgcccag	aggaacttgt	tcacgaattt	ccctcctctg	ttcagccatg	tccttctcac	240
ctggcatctc	aggtctaaag	tttagcttcc	caattcctga	tggtctagcc	caagattcgg	300
gagctgttgc	cagcctctgc	aaatatggaa	gagaaacaa	ctggcgtcaa	aagggagtga	360
tttgttaagc	gggtggcctc	ttctctctaa	ctagatgtac	caacccaggg	agggcccaag	420
atggaaaggg	gtaacttttg	tgcttccaaa	gtagctaaag	aggaagtggg	gagcagttta	480

gccagatgat ctttgattag gcaaacattg agttttaagg aggctg

526

<210> 80
<211> 281
<212> DNA
<213> Homo sapien

<400> 80
gttatattag tgggttagtgt aacattttat ccaggttggg gtgagggggg atggccacag 60
tagcaagtg tgcactaa caccattttg aaggctgatg tgtatataca tcactactgt 120
ccgtagcaat gaggatata gtactgtgtt gtgggtgagt gttgctattg ccacagcatta 180
atctctgggt gtgctgtttt ggggtctatg aacacgcagg agtgtttttg tgcattaat 240
tttaagagaa agcagctttt tcttaaaatt cactgttgag a 281

<210> 81
<211> 405
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1) ... (405)
<223> n = A,T,C or G

<400> 81
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aggagtttga atatgacat gtcatgtctg ccaggacat akccasactg gtccctaaaa 180
ccctctgtat gtctgaattt gactggagga atcttgacng ttccgmegao tcagggatgg 240
gtccattata tgatccatga nccagaacct cdcactcttg tgttcggggg acccacttac 300
cccacaaacc caangaaabg aaccttgggt actacttttc aatcttcaaa kcttttcaaa 360
vhtgaccttc ctccctaaaa ttctttmtga taacacattt ttaag 405

<210> 82
<211> 547
<212> DNA
<213> Homo sapien

<400> 82
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catttacata atatagaag atatgcata atctagaagg tatgtggcat ttatttggat 180
aaaattctca attcagagaa atcatctgat gtttctatag tcactttgac agctcaaaag 240
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ctaatgttc tgcctaccct gttggtataa agatattttg agcagactgt aaacaagaaa 360
aaaaaaahca tgcattctta gcaaatctgc ctagtatgtt aatttgcna aatacaaatg 420
tttgatttta tgcactttgt cgtatttaac atctctttt tcatgtgat ttcataatt 480
gagtaatttt agcagcatta ttttaggaac atatagckgt ccagtaaat atcttgtttt 540
ttctatg 547

<210> 83
<211> 529
<212> DNA
<213> Homo sapien

<400> 83

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agccagttgc	tcattattgac	caattttactg	ctgacatgct	gggtttctgct	gagtttagctg	180
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gaaaaacagt	tacatttctt	gttcgttggc	ctaaacactt	ggtagattga	gaggttggg	300
gctccattca	tgaatgccta	tgtgttattc	gttgttttagt	gaagaagagg	gctcttattg	360
caggaggtgg	tgtccagaa	atagagttgg	ccctacgatt	aactgaatct	tccagaccca	420
tgaatgggt	ggatctctac	tgggttctgt	cttttgcaga	tgctatggag	gtcattccat	480
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<210> 84

<211> 527

<212> DNA

<213> Homo sapien

<400> 84

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acgaagagac	aatttttaaa	aagtcctctt	ttccaatcaa	gcccattgtcc	catctttctt	180
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cgtgtactcg	tctctataaa	atgggaatcg	ttctgcaggt	taccgtccct	ccccgcccaa	420
gcattccctc	tgtccctgtc	ctctgctgct	gggacccagg	gctttttcag	ctgcaggaac	480
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<210> 85

<211> 401

<212> DNA

<213> Homo sapien

<400> 85

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atagtttgg	gtttcgggag	ccaagaggtc	tctttattac	tatccacgat	caggggcata	180
ttgcttcagt	tctcaatgca	tggccagag	atgtcattca	ggccattctg	gtgactgact	240
gagagcgtat	tcttggcttg	ggagaccttg	gctgtaatgg	aatgggcata	cctgtgggta	300
aattggctct	atatacagct	tgcggaggga	tgaatctctc	ggaaagctcg	cctgtcattc	360
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<210> 86

<211> 547

<212> DNA

<213> Homo sapien

<400> 86

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aaacacaaac	ctgttaactc	ccagccagca	agtcctatag	acagaaacac	gtgttacttt	180
acaagggttt	atgtgacttg	aataaggttg	tcccacttga	ctgttccaaa	gagcagcttc	240
tcagatcttc	agtgcttact	ggttaatttc	taacagtga	tttgtgtaaa	gtttgtcatt	300
tcataactcca	tacactacag	ttgtgttcac	tgatccctgt	tttgtctggc	tttaagctac	360
ctgggtcaaaa	atcctgtctc	cttaaaacat	agagaattaa	tgagcatctc	aagctttttc	420
ctttctcttt	taatgatgac	tgcaactatc	agagtattct	agcttctctc	cttgttttgg	480

catatataca tgcacacacac tttttatttc tttaagggtgg gaggatatttc ttatttccta 540
aatgcga 547

<210> 87
<211> 530
<212> DNA
<213> Homo sapien

<400> 87
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gcaatagaag ccgggttcca ccatattgat tctgcacatg tttaacataa tgaggagcag 180
gttgacttgg caatcccaag caagattgca gatggcagtg tcaagagaga agactattc 240
tcaacttcaa agctttggag caattcccat cgaacagagt tggtcagacc agccttggaa 300
aggtcacttg caactcctca attggactat gttgacctct atcttattca ttttccagtg 360
tcgttaagag caggtgagga agtgaaccca aaagctgaaa atggaaacat actatltgac 420
acagtggaac tctgtgcacc rtgggaggcc atggagaagt gtaagatgc aggattggcc 480
aagtcacatg ggggtgcccc ettcacacac aggtctgctg agatgatcct 530

<210> 88
<211> 528
<212> DNA
<213> Homo sapien

<400> 88
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atctttttta taagtttaca gcccttttct tatatatata gttatttcca cctttctgaa 180
catggccagg gactttttta caacttttat ttatttttct agtaccagcc taggaattcg 240
gttgacttct atttgtatc actgtcaact ttctccatgt tctcattata aatgaaccaa 300
ctcagagtct ctcacaaagg taaatgatag ccacagtatt gctccctaaa atatgcataa 360
agtagaactt caatgccttc cctccctgtc catgaccttg ggcacaggga agttctggcg 420
tcatagatat ccgtttttgt gaggtagagc tgtgcattaa acttgcaact gactggaaag 480
aagtatgagt gcaactcaca tgtgttgaaa atactgcagt catttttgt 528

<210> 89
<211> 547
<212> DNA
<213> Homo sapien

<400> 89
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tcttttttct cagatgttagc tgagtcttga tcatttttaag acaacgatcg ctgaaatttt 180
gagattaatg ttaattttcc ctttttgtta atttcagacc cctctcacta tgccttttgtc 240
cagaaggatc aagaattcta ccatcccttg ggtcttttgt tataaacaaat gttaaataaa 300
ggtagactca gtcttcaaga tattagacag ttttttttgt ccatgggact gtaaatataa 360
acattcaatt tctataaga atatttttggc ttgttaact atagcctcaa attggatatt 420
attatggatt caatagacaa acagctgttt ccttatttgt tttttctct agtgtttctg 480
atttgctctc agtgcctgtt tttaagacca tccaaggaaa ataatatttt acagttttctg 540
aagtcac 547

<210> 90
<211> 528
<212> DNA

<213> Homo sapien

<400> 90

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gttgccggcg	cgcgccccac	tgtgtgtgac	tttccagact	ccagggtccc	ccgggtgtgt	180
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tggttcttlt	acacccagtt	gttggaggaa	tgcattaaa	gtgaactccc	caactttgca	360
cgtgttgagg	gctgagtggc	tggggagatg	tggccatggt	cttgtgctag	agatggcggt	420
acaagagttc	gttatgcagg	cccgtgtgac	agggatgtgc	tggggcgagg	caaccgtctt	480
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<210> 91

<211> 517

<212> DNA

<213> Homo sapien

<400> 91

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acacctctat	catactgaag	cctataatga	agaaaaagat	ctagaaactg	agttgtggag	180
ctgactctaa	tcaaatgtga	tgaattggaat	taaacctttt	ggccyttgaa	ccttynkang	240
raasawgrmc	cmacttttyt	taacmtgrac	cwcrytmatic	tctagaagct	gggatggact	300
taactatyetk	gttwtatctt	taatactcga	agggtgttat	gcttctgtta	ttattccaag	360
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ttcttctctat	aaacttctct	aaaaataaag	atggtttaac	caataccatt	gtgaaaacat	480
aactgtttaga	cttcccgttt	ctgaagaaga	gagcatcglt	ccaatgcttg	ttcaactgttc	540
ctctghr						517

<210> 92

<211> 537

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ..(537)

<223> n = A,T,C or G

<400> 92

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taactgtctt	tgcggagccc	acggtctatg	ctctgaatta	caactgaktg	tccctcctcc	480
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<210> 93

<211> 531

<212> DNA

<213> Homo sapien

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<400> 93
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aacaatgtcc ctgcaccccc agtggcatgg ccgtctccag aaggacagaa tccccgcctc      240
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atccctctcc tcactcaatt tccaggtgac aaactctttg ctgaagctgt gcagcaatct      420
cgcaaggctg actcraagag tcttttccac tccgggcagt acagtgtctg aaaagcagca      480
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<210> 94
<211> 547
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(547)
<223> n = A,T,C or G

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<400> 94
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gatgtgtctc ccttctctga aggtcttgaa gaaagctcac agagtcaggc acagcctgtc      180
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tgaagggtc tgtataatca ttttccagaa agtatgggta cctatactaa tgtttttata      480
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cctggtn      547

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<210> 95
<211> 1265
<212> DNA
<213> Homo sapien

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<400> 95
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ccaggaaggc aggaaggctt gatttttgtg aaggtcgcta cttgtgcttg aactaactct      180
caggcacatt agtcagaava tactacctat gtttactccc ccaggttctt aaaaagtaag      240
ctttagagga caccacattg gcaattgag ctggcttcag ccatattgat tctgtcatt      300
tatacaataa tgaaggagcg gttggactgg cctccgaag caagattgca gatggcagtg      360
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tggtcgcgac agccttggaa aggtcactga aaatcttcca atgggattat gttgaactct      480
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atggaaaaat actatttgac acagtggatc tctgtgccc gtgggaggcc gtggagaagt      600
gtaaagatgc aggttgggc agtccatcg ggtgtgccc ctccaaacgc aggaagctg      660
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atccttactt caaccagaa aaactgctg atttctgaaa gtcaaaagac attgttctg      780
ctgcctatag tgctctggga tcccaccgag aagaaccatg ggtggaccgc aactccccg      840
tctcttggg agacccaglc ctttgtgctt tggcaaaaa gcacagcga accccagcc      900

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tgattgccc	gcgtaccag	ctccagcgtg	gggttctggt	cctggcccag	agctccaatg	900
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aagccataga	tggcctaac	agaaatgtgc	gatatttga	ccttgatatt	tttgctggcc	1080
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ccaga						1285

<210> 96

<211> 568

<212> DNA

<213> Homo sapien

<400> 96

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tgaacccgtc	tcaagttgt	acatattccc	aaacattttt	aaaatgaaa	ggcactctcg	180
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<210> 97

<211> 546

<212> DNA

<213> Homo sapien

<400> 97

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cttcagacta	taagcggatc	cttgttttga	gtctccagaa	taactcagac	aacattttgt	540
aactgc						546

<210> 98

<211> 547

<212> DNA

<213> Homo sapien

<400> 98

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actctatatt	atcccttttt	tacagatgag	gcaatttaag	ctcaaaagcat	tttaagtagac	120
aacaaacctc	gaatcacata	gcnaatgaca	gaagccagag	gcctcccaag	tctctctaac	180
tccaaacccct	atgcttactc	tactatatac	cactancctg	caataggana	aagggaatat	240
gtggtaaaat	atgttcccac	cattctaaaag	ccaggagtg	ttttcatttt	tctttaagaa	300
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attcttgata atagagatat gctaacattt gctttgggtg ttttgtaggt tagatttttt	480
tgggtgtgac tttataggct tgcattttgc ttactttaas cagctgaggt tctaaqtaag	540
agtggttc	547

<210> 99
 <211> 122
 <212> DNA
 <213> Homo sapien

<400> 99	
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gcaggcccca cctgcccata gtaataaagc aatgtccctt ttttaaaaaa aaaaaaaaaa	120
aa	122

<210> 100
 <211> 449
 <212> DNA
 <213> Homo sapien

<400> 100	
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ggtgtctcag qactgggttg ggtccaaag tgtaaggacc cctgcccctt agtggagagc	180
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cctgggggta agttgaggtt atcttgggat aaaggtctt ctagggcaca aacctcactc	360
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aaattgagtt cttttctta gttgtctgg	449

<210> 101
 <211> 131
 <212> DNA
 <213> Homo sapien

<400> 101	
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ccccctgtg g	131

<210> 102
 <211> 199
 <212> DNA
 <213> Homo sapien

<400> 102	
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acctgggttt ttatgtaca accctgaccg tgaccgtttg ctatatctct tttctatga	120
aataatgtga atgataataa aacagctttg acitgaenaa aaaaaaanaa aaaaaaaanaa	180
aaaaaaanaa aaaaaanaa	199

<210> 103
 <211> 321
 <212> DNA
 <213> Homo sapien

<400> 103

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aatatatttg	aacaaaaaaa	aattggactc	tgattaaact	gcattccagg	ctgcaggaca	120
ccctggggcca	gcttgggttt	actctagatt	tcactgttgt	ccccccccc	cttttttccc	180
cccactttct	ctttcaccac	catgcacagt	ctttctcttc	ctgcacaccc	gataatatac	240
acagttgggc	agggtaggcg	gggactctgt	tgtaagtgt	ctcttgatgt	gaaggggggc	300
gcacagtcat	ttaaacttgu	t				321

<210> 104

<211> 309

<212> DNA

<213> Homo sapien

<400> 104

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gattgttagg	atagttaaaa	aagctgccta	ttggctggag	ggcggaggtt	aggcaaaacc	120
ctcttctact	tgcacggggc	cttccaaaaag	ctctctgggt	cttatttcaa	ccgcgatgat	180
gtggctctgg	aaggcgtgag	ccactttttc	ggggaactgg	ccacggaaaa	gcctggaggc	240
tacaaacggt	tcctgaaaat	gcacaaaccag	cggggcgggc	gcgtcttttt	ccaggacatc	300
aaaaagcca						309

<210> 105

<211> 591

<212> DNA

<213> Homo sapien

<400> 105

cttattttctg	catgggtcgg	agagtggggc	ggactgcttt	actgagttat	agtgaatgta	60
gttttaaccc	aggcgctcca	catgactaac	tctctatcca	tcaagashga	gctcagctct	120
caattcccca	ctctccccc	ccctgtaaag	tcacctttct	ccaagcttat	gcttccaccg	180
gaatagctac	caattcttaa	atttggggcc	gttaagtatct	tggatatatt	ggctcattga	240
atctccacac	ctactatttt	acagagatgc	cagtgggggt	tgagatttaa	tcacttgccc	300
aggctccuac	tgctggtaaa	cagttagagg	ggctcctgac	ccatcagttc	ggcttgacaa	360
ccccttccct	caactgtggc	tccggccttc	ctttctaac	ctgttgattt	ctccctaggc	420
tgtggtaaca	tttgttgcat	gaatggaccc	ttgaaatagg	gcctggccag	gagacattcc	480
ggcaatgact	gaatggttct	tccctgggag	ctcttgatga	cttaccaggc	cttccagggg	540
ggaaagccat	ttttctccct	gggactcctt	gaaagccagg	gagccctgcc	t	591

<210> 106

<211> 450

<212> DNA

<213> Homo sapien

<400> 106

ctgcacactcc	tgctctctgt	accccgaaac	cgagaggaga	gttcactaat	acccacaggtc	60
ccactaaact	aattcaggtg	ttggcataac	ctgtcatatga	attcaagttg	ccaacaactg	120
tttgctttaa	atctcattag	acctcaatatt	cttttcacag	gacacaggtt	taaactatgg	180
gggggggggt	gttggcgggg	gtctggggata	cccttaaaac	caaaaaagcg	atttgttccc	240
ccctggccag	aagggtgact	gttccactgg	gcctgtccac	acaggacatt	ttccatgaca	300
ggactccac	ttcttgggga	aggggactcc	ggttggccca	ggaaaggccc	aagtgggggg	360
ccactctgta	cattaatact	ttggtgatta	atgtttgggg	aggggcagga	ttctcaccac	420
cccttttgac	ttccaaact	ctcaactcag				450

<210> 107

<211> 116

<212> DNA
<213> Homo sapien

<400> 107
tgcaggaagg ttatgtgcag tcaagtgtaa atccatcagg ttttcacctg ttaaaaattt 60
tgcgaatat acatgttctc ctccgttttt caattctctc atcttttttc ttgagg 116

<210> 108
<211> 291
<212> DNA
<213> Homo sapien

<400> 108
ctgctcgaag ttgtcaaaa ccacgtgcag ggaatggag agtcgatgg ccgacccagg 60
cgagttaggt cctcccacc aatccagaa ctgcacatg ttttgaggt caattccaa 120
ctccttacct ttggttgtgt tegtagecag ggcaacaaag tcttcgcga ctgaggtagg 180
atctttggcc gctggagga accactcctt cgcgtctct gcatttgtga tggctctctg 240
ggtagtcaag gtcttggagg caatgatga cggggaggac tgggggttca g 291

<210> 109
<211> 662
<212> DNA
<213> Homo sapien

<400> 109
gctgttttca cagtacgct gctcacaac ttgcgatgg ccaacatcac catcattggg 60
caccagaagt gtgaggaagg ctaccccggc aacatracag acaccatggt gtgtgcacg 120
gtgcagggag ggagcaaggc ctcttgcagg ggtgactcgg gggggcctct ggtctgtcac 180
cagttctctt aaggcattat ctcttggggc caggatccgt gtgcgatcac ccgaagcct 240
gggtctctca cgaaggtctg caatatgtg gactggatcc agggagcgtt ggaagcaat 300
tagactggac ccacccacca cggcccctca cctccattt ccacttgggt ttgtgttct 360
gttactctgt ttaataagaa accchaagcc aagacccctt acgaacattc ttgtggcttc 420
ctggactaca ggagatgctg tcaattcaat atcaacccgg ggttcgaat cagtggagcc 480
tggattcaca ttctgcttgg aatatattgt actctgggaa tgacaacacc tggtttgttc 540
tctgttgtat cccagcccc saagagacag tcttggacct tggcccgggg cggcccgctc 600
ggaaaggggg cgaattttct tcaagaatat ttccatttcc acaaaacttg ggccgggggc 660
cc 662

<210> 110
<211> 323
<212> DNA
<213> Homo sapien

<400> 110
tctgtgaa cagcccattt tctacctac tgtgggttgc tgcacaggag gacgatata 60
cgcacataa agcaggaaat ctgcagctcc tctgtctatg gctcagaa acatttcatt 120
ttcttgggca atgctctgat taggtatcat acctaaagc cagcatatta gtttaaatct 180
ctaacaanaa actatatttt ccaaggtcat tctcttttgg gcaatttaag tgaatttttc 240
gtcttttgtt gagcttcctc tttagggcct ctcttcttcc ttcacattca tgaagtctgg 300
catttcctat tgcgaattta cag 323

<210> 111
<211> 336
<212> DNA
<213> Homo sapien

```

<400> 111
tccagtgagc tccagcccta tctaggaaag gaggagtgag cgtagccgtg ccgcaagatt    60
ggggccctcc ccacccagc ttctcccca tcccagcag ccaggatct agacagtctt    120
ccctcccca ccccccctt agatctccat tctcaacag agccaatat tctctctctc    180
tagtcacagc cctgtacagc atttttcata agttatata taaatggctt gctgattctg    240
tgcttcagt gctctcattt ggaatgagg caggcttctt ctatgaaatg taagagagag    300
aacractttg tatattttgt aataccacct ctgtgg    360

```

<210> 112

<211> 218

<212> DNA

<213> Homo sapien

```

<400> 112
tttttttttt ttttttttt tccagtcagg agtattttta atcaatgtct acagagacac    60
ctacatacac acacgggttg ggaatgaacc caaagttrtt aggtgaagtc tctcagggcc    120
caccocgtgc caccagactt cctcggttgc agagattctg agccaaagct cctgtgcttc    180
atgagattat cctggaggag tttagaagaa ttttctgg    218

```

<210> 113

<211> 533

<212> DNA

<213> Homo sapien

```

<400> 113
ctgcaccgac agtgcggagc aaagttctaa tctcttccct cctcctgttg ctgcactaa    60
tgctgatgtc catgtgtctt agcagcctga atccaggggt cgcacagagg ccacagggac    120
gaggccaggc ttctaggaga tggctccaga aaggcggcca agaattgtag tgcaaaagct    180
ggttcttgag agcccccaga aaaaaattcc tgcagtgctc tgggtgcaca aagaagcagt    240
gcccctgtga tcatctcaag ggcaatgtga agaaaacaag acaccaaagg caccacagaa    300
agccaaecaa gcaacccaaa gctgcccagc aaattctcag acatgtctcg ctacgaagct    360
ttgctctgca ttgtaggag ctctgagcgc ccactcttcc attaaacct tctcagccaa    420
gaagcagtg agcacacta ccagcactc ttctctccc acctcactct cccactgtac    480
ccacccctaa atcattccag tgcctcaca aagctgttt ttcagatct aa    533

```

<210> 114

<211> 261

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(261)

<223> n = A,T,C or G

```

<400> 114
ccatatctgc tggcgctac ttctttcttg gattgacct gantgatgca ttggcgatgc    60
ctttggagaa ggacatgtga tgtgatggtc ttccggttcc acatgtactc gggcaaatag    120
ggggacaaac tgaagttaas caggtcgaaa cttagaggag tgtgacctt ggaagtgaac    180
actttcttgg ggaacaggac acatgaaggc gctttgaaa agctgatgag caatctggac    240
acnaaatag gacaaccaag t    261

```

<210> 115

<211> 267

<212> DNA

<213> Homo sapien

<400> 115

cctctctctgt	gggttccaga	ccctgttcca	gcaacacattg	ctgggacac	tgggcggact	60
gctccacctc	gccaggccct	ggccctctct	atctcagccc	tgcacgccc	ccagtgtata	120
acacagcagg	cttcttaagg	aattgtgcgc	acccagcggg	tggtagtaca	cgttcccttt	180
gaagtcctct	gaaaattaga	gaaccgattt	gcctcatagc	tgaagagaga	ccctattcca	240
agcatgaatg	gccttgaca	tgctct				267

<210> 116

<211> 239

<212> DNA

<213> Homo sapien

<400> 116

ctgatgcctt	gggtctctagt	gaaaatgcag	ggtcagattc	agtgggtctg	gggtctgaat	60
ctctaaaggcg	ctgccaagtg	atgtgatgc	tcttggttgc	tggacccccc	tgtgtatagc	120
aaggtctctg	actaggaggt	ctcaaccttg	gttgacacaga	attatctggg	gagtttttaa	180
atttcccaagt	gccaggctc	cattcatatc	atagtagaga	cagggttttg	ccatgctgg	239

<210> 117

<211> 168

<212> DNA

<213> Homo sapien

<400> 117

aaasaacttt	tatatgtctg	cattcttcc	agttcttttg	gtagtctctg	aacttanaat	60
tgttgagggt	ctggagctac	caaatlttt	aagttatgga	tttgttccatc	ggttgtaggg	120
gtaggtagag	aagggaacag	acaggcaaat	ggcttcttga	ggtggcag		168

<210> 118

<211> 150

<212> DNA

<213> Homo sapien

<400> 118

aaaaaaaga	gtttatttgc	aaagtatcat	agtgtaacac	aacaaattgt	acccttttga	60
ttttctttga	atacagagct	cgtgatgcaa	agctgaagtg	tgtgtacacg	actcttgaca	120
gttgtgttcc	tctaggaggt	tgggtttttt				150

<210> 119

<211> 154

<212> DNA

<213> Homo sapien

<400> 119

aaactglttg	agatattaac	cagccgcctt	gttatataat	caggaaatcc	aaacagtgat	60
ttacacagat	tacaccccc	ttttatattt	tttcaattac	actgagacaa	taatacaacg	120
ttttcatctc	tcttgctctt	ttttgttttt	tcct			154

<210> 120

<211> 314

<212> DNA

<213> Homo sapien

<400> 120

ctgctgtggag	tgaaggagag	agggatcac	tgtgtgtgog	agagtgtctt	agactcaatt	60
tccaaatcaa	ttttcaaccc	tcttagcctg	taatttcaa	gatggatctt	tcatagaat	120
taaaagatca	atttagcttc	atttgcata	cagaacaaat	atggcacaga	tggaggtcct	180
gcaagcttct	ctttatgat	gttgatctct	gtatctaca	ggctagctag	aggttcttca	240
ctcagactct	acaggcattt	tccgtaatte	aatcagtcct	gtccacagca	caacacagga	300
ggtagttcga	gaat					314

<210> 121

<211> 601

<212> DNA

<213> Homo sapien

<400> 121

aaaaaaacc	taattcttg	aagtaataac	caataaattt	tcaatcttga	ttcaactgtg	60
attcaaatct	tacacattc	gcccctctc	tgaacttatg	tataaaattt	tttaagagtc	120
agagtttttt	ttctctgatt	aattggatgt	atttcacaga	atttcacact	gtctcagtta	180
gttttcttct	tttttagagtt	gactctctct	atgtattaga	tcttcatgct	ctttagtagtc	240
tctctgggaa	aagtttgag	aaaaaacttc	agcatgtgct	aggaacacaa	cctcaccttg	300
atcagagtat	tgcataatca	catctgacgt	accaggcaat	gcasagggaag	aacatcttaa	360
tatgtttatt	cagatcttct	tgtgggaaaa	gaatctgaga	aacaaaggaa	atcactgcct	420
ggaggtcata	aggctgaagg	gattggtgtc	aatcaacgac	aatcacaac	aagtgtattgt	480
ccagggtgtc	catgaactct	gtgatctgga	ggagctccca	gttagctggga	aggttgaccc	540
tgagagacca	aatcgatttg	tctcatttgg	caggaattta	gataaggata	tctttaaac	600
g						601

<210> 122

<211> 486

<212> DNA

<213> Homo sapien

<400> 122

ctgtttctca	ttgttttgt	gactgttacc	ttttagtcca	tgcacaccca	aagagctaaa	60
tttcaaatct	ttacctacaa	aattgatttt	taattcctgc	aaataattta	ccatttatgg	120
ctacaagggt	ggcaacagcg	cctgaggatc	taattttatg	catattactc	ccaggtattt	180
taacacttgt	tggagaagca	atatctggat	caataaaaca	ctgtcccatc	aaccttttga	240
gtggggagag	ggagaagctc	ttctgttaagt	aaattcttgg	ccagctctct	gaactgggtc	300
ttctttccca	cagattttct	ctactctttc	aatacaaaac	gataggagaa	gggggaatag	360
aaacttgagg	gaacttgat	atthttgttc	tagatagaga	taaggttatt	gaaaaggaaa	420
cctagaaagt	agtcacacgt	cgtttattta	ggccagaagt	aattgtaccg	ggcaaaattt	480
tcaatt						486

<210> 123

<211> 239

<212> DNA

<213> Homo sapien

<400> 123

ctggtgggtc	tttttttct	ctcaggctc	aggctgttag	tgcctgatgt	catthcttct	60
aagttgccca	cagtatctcc	acttaaacct	ggctagttaac	caaaataatg	tggaccttct	120
ttaggaaaca	gtctggggga	ctaggagctc	agccctaaqa	taaaactgaa	ctattttggc	180
gtcttgtacc	tggctagcca	ccacctcagt	gttgttctca	catnaacaag	gcccctttt	239

<210> 124

<211> 610
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(610)
 <223> n = A,T,C or G

<400> 124
 ccancacagc ccttgatgat cactgacccn cgcgcgcctg ctggaccaaag gtggetgagg 60
 ggaatagcc acngngcttt cggttttctt ggtgaaggaa taacacggcc cgacagcagg 120
 ttttcagtc ggttcaggga ctggttgcttg cgcgcgaaaa taacccgtac gccagaggtt 180
 aggcaggctc tcttcgcagg tgcattgccc gaggcttcga tggtagcagt ctggtgctg 240
 cccgaatcct tgaacaagc agcgaattca tcacccatca gtttcctcag cgcgcggtcg 300
 atctggtggt tcaggaaggc gtcgaacttg agtaactgat cggaaagcac gatgccttct 360
 tcggaatttt tcttgtagc tgccttcacg aaagcttctt ctgttgagcc aacacggccc 420
 gaaagttag taacagtag tgcattctag cgtcttaaca tcgcgcgtat atccgcagg 480
 ggggtattgc cgcgaaggc ttgacttgc gttggtgtgt cgtcgttgcc ttcccatgcc 540
 agtccatcag ggggcagttc gtcgaaggac cggctggggg caaatcaat gatctgcgcg 600
 tactgcttgc 610

<210> 125
 <211> 1-6
 <212> DNA
 <213> Homo sapien

<400> 125
 ctatagggct cgagcggccg cccggggcagg taacaaatca gccctaatc tctccatggt 60
 taacattcaa tctgcggcct tcttaagtg acagtatcct taacctgcca ccagtgtcca 120
 ccttcgggc cccgtcttgt aaaaaggggg ggggaattag caaacactg taagcttttc 180
 agaagaacca agtttt 196

<210> 126
 <211> 247
 <212> DNA
 <213> Homo sapien

<400> 126
 aatttagtta aaaaatgca ttcttcattt gatatagcca cttcccaat gcttasaagg 60
 cgcattgctc tagtgactac cactctggag agtaacaata tagaacttta cccgtcactg 120
 cagacagttc tgttgattg tgcagcattg gacaaatata cccgtttgcc tgtatcatgag 180
 aaagagagag agagagagag tctgtgtgtg tgtgtgtgtg tgaagtgcac taaggctgac 240
 aggcata 247

<210> 127
 <211> 570
 <212> DNA
 <213> Homo sapien

<400> 127
 cctccacggc atggcgaat tgttgctcag gggcgcgcag gttgctgccc atgcgatgt 60
 agataggttc cactgtctta ctgcgcagac gcactcgaag cgtgcgcagc gctacgtttg 120
 cgtttgatgc cactgtgag ggcagcgttt ttgcggccat cgcgcgtggc ttgcgtttg 180
 ctgctgagct ctttgatcat ctgcgcgcgc tggctgtctt tggcgtcctg gtatgtggtc 240

caccactcgc	caaggccgc	ggtctgttcg	cgggcgcctt	caggcagcag	caggaagtc	300
taggccggga	cggaaagcgc	ggtcgtcccg	caacaggctg	gcacgcttgc	cgtcgcggcg	360
tggcaggggc	tactgcctgt	cccagatttc	acggatcggc	atggtagcgc	gtttcgggct	420
ggcgatcggc	tggcattgct	cggcgctcag	ctcgtgagca	gcctcctgca	tggctgggaat	480
tcccgccatg	ccacggcttt	gcaggcgcat	gaagcgcttc	gaagcgcgcg	gcacacacgc	540
ggcgggcaag	aggaacgccc	gggtgacgg	tttgccttcg	ctgatcgca		599

<210> 128
 <211> 361
 <212> DNA
 <213> Homo sapien

ctggccctgg	aaacccctcc	ggagctgctg	gaactgcaca	ggaccagtg	gagggaggcc	60
attggaagct	tcatgaaac	ctctttcaag	gatgtaacca	aagtctccag	aaagatttgg	120
agactctact	agctgcacaa	cagaatgaca	tttgtaaaag	gaacctggaa	gcctcctcgg	180
attattgtct	ggctttactt	aaggatattt	ttgctccctt	agaaagagca	gtgaagcagg	240
gaatttattc	taagccagga	ggccataatc	tcttcattca	gaaaacagaa	gaactgaagg	300
caaaagtact	tgggagcct	cggaaaaggaa	tacaggctga	agaaattctg	cagaattatt	360
t						361

<210> 129
 <211> 546
 <212> DNA
 <213> Homo sapien

aaaaatacaa	attcagtaag	acttttgctc	taacaacaaat	ttttcaaaac	gaatcaacaa	60
caaaaagctc	tccagtgttt	cttttctcat	gaagctatcaa	taaaacacag	tattggtaag	120
cacattttta	cagtatgctt	ttcttttgta	gggaaaggag	atatggctat	gtctaccatc	180
gtgggaccca	atgtagttga	tatgttgtgc	cttggctatc	cctggcttat	taaaactgca	240
tttataaact	gatacagctc	tgcagaagta	aaacgcagag	gactaaatta	cataaccatc	300
tctctcaaca	tttcaattat	ttttcttttt	ctagcagttc	acttcaatgg	ctggaaacta	360
gacagaaagt	tgggaatagt	ctgcctatta	tctactttgg	ggcttgctac	atttatcatt	420
ctatatgaan	ttggaattat	tggaaataat	aaaataaggg	gctgtggagg	ttgatattat	480
taatatgttt	atgcagaaca	tatgaatggc	agggaggggc	agagcgaaa	atccattttt	540
ccattt						546

<210> 130
 <211> 733
 <212> DNA
 <213> Homo sapien

<220>
 <221> mlec_feature
 <222> (1)...(733)
 <223> n = A,T,C or G

ggggcctctt	ccaaaggcca	cttatcccat	ccaatagggc	ctaaacctcat	gaattaatca	60
actttcaaaag	acacacacac	ctaatgcat	cacatccgaa	cttaggcttc	aacatatgaa	120
ttttgggggg	acacaaacat	tcaactcata	gcattcattg	ttttttgtta	tggcaaaagc	180
caagctcac	attgtctaaag	ttatttgact	tttgagtcgc	cagatgcgaa	aacagtgcata	240
aacagtcacg	cttcatgagt	ggagaaacag	atttgtgaca	acacacaaag	tacctctgtg	300
gtcagtgctc	tcaaccaggg	cacagcatca	tggaccagag	cctctgcagg	gcacagaggga	360

```

gtggtgagga acagggggtc tggagcaacc ccacttccct ctgcttttgt tatgggggggt      420
tctgcacata actgcatttg aasaggggtc cactggcgtt gctgaaggag tgcacttgag      480
ctagcggaga gtccccagag ggtgtctgga agsagcaag gctattcttt gtttcaacta      540
gltatagctg gaagtcagac acttctgctt gaagtacttt cacacacccc acagttttaa      600
gaaggatgga naaagcatgc caactactca nnaaacacaa ggtgttcaag caatgggtatc      660
cttctctacc tacaactagt ggcacaagng gggcctctgt aacttgggag agctaggaaa      720
actttttctg ggg

```

```

<210> 131
<211> 305
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(305)
<223> n = A,T,C or G

```

```

<400> 131
aaacacatac gaatanttna actgtgatta tgaagtgaca gccggctaaa tatgtcttgt      60
attttctctc tttctttttt tgcatactca tcttttatth cattcctgct tccatagtaa      120
tgcaggctca aataaattac taggatacaa gattacttca agcctctttt ctgtgggaact      180
cctaatatga taagcatttg ttacaaagct gccgtgagth gtttggggga ccaatttatc      240
tggggaaaga aagtctttct ttagttaggt aaattttcta ttataattgg gtactaaatt      300
ttttt

```

```

<210> 132
<211> 545
<212> DNA
<213> Homo sapien

```

```

<400> 132
aaacacatgt acatcattt ttggcaaggc gctgctttgt tcaagtctgtg tacaacactg      60
accatctctg aacccatcag tataaaacat ttctataaaa acaaaatttc gacagcggtt      120
caagaaaaca agctgccatt tatgcataga ttgatgtaca gtaacctaac caaatgtccc      180
ttttgaattt tcaagttaac gaacaaacat gtgtcggaga acacatttaag aaggacatg      240
tacagtctac aatactcttc agtctcccta actcatgccc tgcacctata aaggaaatat      300
gttccacatt ttacttgaga aaaaaaacca aagcaattta aaaaaaaa aaacacacag      360
caattattaa agttcacaat ctctggagga aatacaagc aaaaccactc ctacactcca      420
agcctgaaac acacatctac cctccccggg tcttggtttg gttttcagag gtccacctag      480
aaaacacatc taacacttca ggcacaacag agcaaaactg gacatttacc aattacacaa      540
ttttt

```

```

<210> 133
<211> 330
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(330)
<223> n = A,T,C or G

```

```

<400> 133
aatatttatt actaatatct tataatgttt tgtggnaacca tggcatacct tgggtactat      60

```

tgtsacacat	agttcaggaa	acccctactat	aaagttttatc	aaatggatctc	atseecagtt	130
acttattcaa	gcagcccaaa	gttcagtgaa	aagtattttt	cacccctact	ctttctcgtg	180
ccactcaag	agaagttttg	atgtagtgta	tccatttgta	ggagtgatg	aacagatcca	240
tttcacagta	gactttgtgc	tctaggtgat	gcagctaatt	gccccagttt	ggaacacatg	300
gacttgatg	aattgtcttt	tgtttgggac				330

<210> 134
 <211> 627
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1) ... (627)
 <223> n = A,T,C or G

aaatattact	tcaaatacat	tttcaagctc	aaacaaacttg	tgttggaactg	aattgcagat	60
cctgaactct	atttgaaaat	acatcatgaa	acagaaaanc	ccattccaaa	tgaaaatgat	120
agtgttttgc	tgggggtggg	aattgggggg	ggagactaaa	tcaactctta	cagacttctt	180
ttcccacatg	aatttgcac	aagttcaaaa	gttctgaaat	gtactaaac	ttcagcaaat	240
tcaattcatg	atattctaa	aactttttta	atagtgcaat	gacttatcaa	gttatagtg	300
ctgcattag	aaacaaattat	tgtgtgaat	acctgtctaa	aaacaaata	caattcaata	360
tttctttaca	aaaagctgag	cattacgcac	aatagtgga	tgtctttcat	taggtgtact	420
ttctaaagat	tcaaaaaat	aacatttctt	aaaatgtata	catgtgcac	atttttgcac	480
acatgcctga	gaatgtatct	aaaacatttc	tgtagtaaga	gtttgcaga	acttccaaa	540
cctgcacata	aaatgcctct	tttcaaaaag	gtgaaaatgg	caatccaca	ctgcaacac	600
tcaaaaagtg	cagctatctt	aatctttt				627

<210> 135
 <211> 277
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1) ... (277)
 <223> n = A,T,C or G

aaactcaaat	atattacttg	ttcaaaatca	gcttgtttca	ttacnaggaa	ttacaccagt	60
cctttctctt	tactttcaaa	ccctattcaa	ctcttcaact	ttcaaacatg	tactcaacta	120
atttccaaa	ggaaaaggtg	cccttttata	aggagagatc	tgttaagaca	ccagaaatc	180
aaatttaata	taacttaata	attaagtgga	taacacatgc	ctccaatac	agtgcagtg	240
gaacacacaa	acatcaattc	cagagtaactc	tgcgtcg			277

<210> 136
 <211> 485
 <212> DNA
 <213> Homo sapien

aaacacagat	gaattccttg	ttacagttac	agaagtcaga	agcccaata	caatctcccl	60
gaacacagc	cagggtcaga	aaggttcttt	tccactgttt	tgcaaacctc	tagaggccac	120
ctgtattctt	tgggtctggg	ccctctcttt	cacatcaaa	tactcagcat	agctttatga	180

cattgggcagc	tctgattttg	ctctttttgac	ttctcttttat	gtagacccctt	gtaattacat	240
tgggtacaccc	cagataaccc	cacatccctc	ccctatctca	agattcttca	tgtatttata	300
tggggaagct	cccttttctc	atataagata	acataggcaat	gggttccacg	gattagtatg	360
tgggtttctt	ttgaggggct	ctcattcaac	ctaccacac	ctgggaatgt	ctattgtttt	420
tctatgtacc	agaaataaga	cattaggatg	tgaatttaac	aacataaac	cacttaccgc	480
atccac						486

<210> 137

<211> 592

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (11...1552)

<223> n = A,T,C or G

<400> 137

ccctcttccca	tccaatgttc	ctaaggcgct	gactggctat	caaccacagt	ttctgtctcc	60
ccagtggcag	acacaggatc	cattgcaacg	ttctggaacc	atccacttgc	aaacccaagg	120
ggatggggtt	caaatgcaga	actcccaaat	tataaaacag	tcaggctaca	ctcaaaacaa	180
aacatagaa	atcaaacaca	ccatctctcc	aaaaagagag	tgcaacgcat	gcttctataa	240
accacacata	acaaaaaac	cacaataaaa	aatgcagagt	ctcccaaca	agttttcaaa	300
tgtattgcan	aaqaaacaa	aatgtaacaa	tatataaat	taaaagctct	gaatatactg	360
tgcattgtca	attacctaac	accaagcttc	ttttctttct	gtcccaagtc	tactgcacct	420
ctgatactag	cagratgtct	acaggctaag	accatagcag	caaaaaagct	ttttcatttg	480
gcatttaca	atttaattca	ctgataaaaa	atataatctt	ttccaaacct	atttcttaca	540
gtaataattt	tt					552

<210> 138

<211> 531

<212> DNA

<213> Homo sapien

<400> 138

aaattttact	agtgttaact	aattgtatatt	ctaaaaagag	acagcagtaa	ctaatgcact	60
aaatgtttga	tctctgtttg	tcattacttt	ctcaaaatat	ttttttctgt	aaagtataat	120
atataaaact	tcttgcttaa	attgaatttc	tataatagtg	gttaattgca	gtttattaaa	180
gggatacttc	tcagttaatt	cattgcaaat	gttctagtgt	ttcaggtttt	t	231

<210> 139

<211> 535

<212> DNA

<213> Homo sapien

<400> 139

cagttgcgaa	ccctctgaac	cgttttaggc	gattcctcgc	tgcctttgaa	tctgggcagg	60
tgggtatccc	gcagggggtg	aaaccaagga	gggggggctg	tgaggccctt	cgcagtcact	120
cgttaagtgc	tgcgatggag	tgaactatca	cgcctcgtgt	ctatttctgc	aaacagcaat	180
gtgatttatt	tttgagaatt	aaacaggcag	ttctcgggtt	cgttttcagg	aagcgtggga	240
tatgattctg	ctatctctgt	acggatatar	agtaattaac	gggaggggat	tccatggcga	300
agaagcaggc	ggcaccggca	gcacggcgag	aaatgagcgg	tatggcgcgc	ctggggcttc	360
gagtcctcgc	gatgattaat	caccoggtcg	cccagacgca	ggcctggggt	acgatctcgc	420
gcctgggcac	ggatggggat	cgggagtgag	aagaggttct	gagcgtgac	gctgataacg	480
acgagctcga	gctgaagctc	aatgaagcag	gcagtgtgac	gctgaggcgg	gagca	535

<210> 140
 <211> 640
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(640)
 <223> n = A,T,C or G

<400> 140
 acattggttg cacttgaact gaggtagaac cacaacattc ttcagattgt ggatgtgtgt 60
 cctgacatag aaggagatga aagacttatt cgtcctaatg gagagatcat gaggagaaag 120
 gagaataaaa ccattgtttt tgtggaaacc aaagaagat gtgatgagct taccagaaaa 180
 atgaggagag atgggtggcc tggcatgggt atccatgggt acaagagtna acaagagcgt 240
 gactgggttc taatgaatt caaccatgga aagatccta tcttgattgc taccagatgtg 300
 gctccagag ggctagggtt gtacaaactc gcatcctatg ctggtttcc cagaagatct 360
 ccatttaact ttttaaaaa aagtttattg cttctcttaa cctgcatttt ttctaatgtt 420
 tttttcgcat aaaggtgctg tctttgtggc aaggcctagg catgacaatc ggaggactcg 480
 agggggatga aggactagtg atcggcctgg ctgcttcagg tggattagag aggtgaaaa 540
 gctgaacgtg tggccantaa atcttcaaaa aggcagaaac atatcactt ntgcacct 600
 aacttggtc tttttcgaa ggggaaaaa acaatggaaa 640

<210> 141
 <211> 127
 <212> DNA
 <213> Homo sapien

<400> 141
 aaaaatcaca cactgacaa acagaaatag gaatactag gaaaagctca gcatatgaaa 60
 gaaaacatg ttttatgcac tataatatat tttttccat tagtataaag gcaatgagg 120
 tttttt 127

<210> 142
 <211> 126
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(126)
 <223> n = A,T,C or G

<400> 142
 aatatctctc tggatgctt caagtaatac taatcatttc atgggnaaaa gcttttctat 60
 aaaaatttc agagttaaat taattgaat atttataata catttggtac acagttattt 120
 caata 126

<210> 143
 <211> 730
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(730)
 <223> n = A,T,C or G

<400> 143
 gcaagttctg gagggtttac ttctgagcct gaattccctc ccccgcaaaa tggggggaata 60
 cctctctcag aggggtcccg cggagggtgag gggagctcag catggcaggc gtgctgggca 120
 cgggcaggcc tgggaagggc agatccttcc cccatccctg ccacaaacaa cccaaacctt 140
 taaaggaagg caatggcctt ggtgcassaa caaaaaacaa scaaaaacct gacctaggag 240
 actggggccc taatttctaa tagcaagcct ttatgagtcn cttaacctct actgggctga 300
 gtatctcaca cgcacaggga taacctgact tctgctccac accacccctg agtagttgac 360
 attgtgtccc ttccacagat gaggcaaaag ctacagaagag tcatgtgtta aaccagcttc 420
 tagagccctt gcaggagctg caggtagggg gaetcccttc taggtgctct tcccatggaa 480
 tctccacctt ccttgagtggt tcaactactc anctttccaa tgggtgtgtg accttgacc 540
 agcttctctt ccttctctgg gctcagttt cccaccttgg acaagtaag aggtccttgc 600
 ggnbtcaagg tagttctctc taacttcttt tccctttcat tggagctac tcttctcttt 660
 ttctgcacct ctcttgctat tacaagcttt tacccttggc cgggaaccac gcttaagggc 720
 nsaatttccc 730

<210> 144
 <211> 485
 <212> DNA
 <213> Homo sapien

<400> 144
 ctggctcaga atgattctct tgtgacacca tggccacaa accgtcgggt ctgtcctccc 60
 catatgttad ctggagagtg agctaccttt cctctgtgag caattttgtc gctcatccag 120
 tcttctactc gtagggcata ccagccagatc ttggatgtgc tggatgaaca tcaactgtgt 180
 tgggtggttg gtctgtctgc gccacttcta atctctctca tgcacagtc aggtatggca 240
 ttccactat agctacaaac attgaaggaa cgtcagctga cctgactgtt gtatgtgag 300
 ctctactaag acgacagata atcaaaactaa atagacgtct gcaacttctg gaagaggaga 360
 accaaggacc tgcraaaacc gaatagctca tgtattcact tactgtagct ttctggctgc 420
 ttaatagctg gctctgggtt cgcggtaga ggtacatca gccctcaaaa atattgtctc 480
 sacag 485

<210> 145
 <211> 465
 <212> DNA
 <213> Homo sapien

<400> 145
 ccaagacagc tggtttctgg agagtatgag ggtgtgtttt cttatttgtg aaggaactac 60
 ctctctctag aggttaggaa gaatghggtg tgtgtgtgtc tcataaagca accggacatt 120
 atagggtgccc aggtcactca taaaacagat ccttgggctg tgtaaaaatg aagtggcttt 180
 tcaatatctt ctttccactc tgcctgttcc ggagactatg caatgatagg aaggtgattg 240
 cccctttatt caattcagtg ccattggtcc ttttgttgtc gtaatttatt tgtttagttc 300
 attttttttt tcttaacagt caaagggaag agtgaattct ccaactctt tcaagctgga 360
 ctgagccagt ctcaattctg gaagaaatg ctgtgtccag aactcagcag ctccatctat 420
 tttttccagt cggaaagaaa tgatctttag gcggttttcc cttag 465

<210> 146
 <211> 351
 <212> DNA
 <213> Homo sapien

<400> 146

ccagccggggg	tactctgtat	gtggcggaat	cgagctacga	cgtggggggc	aagtgcctgt	60
ttgaccagat	cagcggcggtg	aagcttatgc	caactcatcg	tttgataaat	ccgaggatca	120
gttcagagcg	tgcagcgggg	tgattttggg	aacgtcggtt	cgggtcagta	aattgtgggt	180
agccacccaa	tenttgcacg	gcagaatga	cccgatattt	ggcgggagca	gctataccga	240
ggccctgggg	gctggggggg	gtaaccagtg	ggagcattcg	ccatatacga	acattgggta	300
ctacttctga	cttaagatct	cccggtttt	aactggcctt	atcgtaggca	a	351

<210> 147

<211> 654

<212> DNA

<213> Homo sapien

<400> 147

acttattttt	acttactgaa	tatttcttag	acgttttggg	acagattttr	tgtaatctct	60
ataagttatg	tttctgaaga	aaagcaaatg	cattagtatg	tttgccctta	acttgtagac	120
tcaaccaaagt	attgtaaaat	aaacagcgat	aaacagtata	gtctttacat	ctataggtcat	180
tgtatcactc	tggaaaatgt	ggagttagctg	taataaatct	actcctgtat	tatgcctttac	240
agtgcaggto	ttagtttttc	ttttctctca	tctcttttga	aatggcctct	cgaacaaagt	300
ccaccaatcc	ctttacaaaa	gaatgaactg	ctcctctgtg	tgtacttcct	agaaggttgg	360
atcggaacga	ggcaggtttg	tgacagttat	tcttgaataa	caggagccga	gtacagtctg	420
ttgtggcttc	caggattccg	cgcttagctc	agccatttaa	gcatgagaca	taggcatttg	480
agccactttag	tsgttctggg	agtggataga	ttggtatgta	agagggaaag	aggtctgctg	540
tcaagaaaca	cacttgtttg	tctgtggggg	aagaaagcca	gaatcttggg	atgaaagttg	600
gcatacaaat	aggatactat	cgccagttag	ttatattaca	aaacatttat	cggg	654

<210> 148

<211> 539

<212> DNA

<213> Homo sapien

<400> 148

tggatctcat	gggggtgatt	ttcacttgat	tgcacaaactg	ccatagtctg	aaacactttt	60
tcaattttac	agacacacctc	tgtcaagact	tcatactatt	ccactttgca	agcctgtggt	120
ttgcctttct	caacctaaaa	aggaacagct	ttcaacgatg	aacttacatt	ctattcaaac	180
atcagaattg	agcttatcca	tctgttttag	gtgaatgtac	aaaccaggta	catttccaac	240
aaacacatag	aaaaatcttg	tgcctcacag	ttcagctaaag	ggtagttagg	caatccttcc	300
aatcctcctt	ggatctcttt	tttaagatgt	caaggaagcc	ggttagcaac	attgttcatt	360
tgttactggg	tgttctagat	caaaccttca	caagctatat	atatagcttc	atatgcctat	420
gcttaccagt	ggggtaacaa	agtcaagaga	aggaacaaat	tatactttga	cacttttatg	480
tcaagatata	attaaaaaag	aaatcctaca	gtgggttaatg	gagaaataga	taatttttcc	539

<210> 149

<211> 273

<212> DNA

<213> Homo sapien

<400> 149

tttttgggtc	ttctcctcaa	ggagccgctg	gatagtagtc	ttgattgact	tcacctttgc	60
ccctcatata	gtccggtaact	agggcaacgg	acctcccgag	gaacctccgg	aaacacgacc	120
gcccagccac	tgcacccacg	ataggtgggg	ccctacgctct	cgaagttagt	tggatgctcc	180
cgcctacagg	gcgggggtaca	gaagggagct	cattttgtac	tggacgcgcc	agagctatcc	240
tcagcagctt	tctctgttcc	cagcccttag	aac			273

<210> 150

<211> 200
 <212> DNA
 <213> Homo sapien

<400> 150
 gtttttacta cagtatggcc cctttaaaag ggaatgtgac gccttaccct ataacocctta 60
 aacccacctag aactatgaaa ctccacatgc cactgacctc cctcaccag ctccataaaa 120
 gtaaaaaatt ataataaac ttattaaaca aactgaacga aactatgggc gattgattca 180
 ttgcccctcc accctcaggg 200

<210> 151
 <211> 515
 <212> DNA
 <213> Homo sapien

<400> 151
 ctgtagcgat ctttaagaat attttatata tgaatctctg atctagggtt cccatgggtct 60
 ggccacacctg ggtacagtag ctccacatgc cagtaattca ttggagttga agcagtgagg 120
 aaagagtcna gtaactgtct tttatctcca gtgtccagtg actgtcaaga gaaatggggc 180
 tgccttctgc ctggggatct gtgggttasa gagtagtcca atatagaaga gtgagaaagt 240
 gmacctctcg aggcctagta atgttttatt kaaaacata tccatgtat tgaatactta 300
 aataggatgt attctgatt actgaatttt ccagattatt gaagcaatca cctttctgtg 360
 tttaaagttt tagaaagat gcttttataa atgcttaaca taagataagg ctgttttcat 420
 ggtgcaaggt cctttctatg aacatgaata actggactct gagggcttga ctaagatcac 480
 atctacctcc ctlttaaatg actagtgtgc tccg 515

<210> 152
 <211> 243
 <212> DNA
 <213> Homo sapien

<400> 152
 atttcaacaa cctacttgcc gaggtagtta taatctctct tagggggagg tgggtggttc 60
 ttttgggaatg ccaattttac agcttctgct gctgatccag gttctttaat tatgcttttc 120
 tttaggtctg ctccagatag cacaacaaaa aatgatgac acttttccca cttagcaaaa 180
 cgggtggatg atacaaaagg tctctaatg tgtgcacaag tggccacatt taggacagcg 240
 cag 243

<210> 153
 <211> 620
 <212> DNA
 <213> Homo sapien

<400> 153
 ttgtcttctc taacttccca tagccagttg ctthcatttt aaaccagagc aagtaacata 60
 ttagtgaatt gaattctcat aggtttaaagt aaaaaacaga aaaaaaccta gatctttgtc 120
 ttttagaaca cagaccattt tcaggaaagg agttagctaa gtgttlaatt cctgaatatt 180
 gtatactgca tcccttacca caattttcac aatctgttgg atagtctac ctccacctgy 240
 tcaacctaca tgaatcttca gctaattggc gatcagatg accttctaga caugcacaca 300
 actatacctt tgtcaaacag atcataatat atctgtcttc caactggttt taactgacta 360
 atctctctga ttggggcact gcttctatag tctctcaggt tcaacggaaa tgttgaattt 420
 ctaaggctct cttttttaca gagtatacag gcaagtgac aggggaaaag gaattagtct 480
 aaggttaagg gaatgattat tatcttgagg ctaaaaaac aaagtggctc aggtttttaa 540
 aaaaaacact gtggataatg acaaaaagca taagtaaaa tcttttgaga aacataaagt 600
 acacagcttcg aacacccccc 620

<210> 154
 <211> 843
 <212> DNA
 <213> Homo sapien

<400> 154
 ctttgttagt gacccaagta aatttatagt ttttaagtto agagggaaaa taagcoctat 60
 ttttcttttae cagtcttaat aattataaaa atgggaataa gaaacccaas aaaaaagaaa 120
 aagtttgtat gaaaattcat ccttatttct ttatttttgg ctaagtagtc aaatttctac 180
 tatatttaaa ttatgttaag gcaccccttt taatttcaat ctcttttgata gaagggtgag 240
 ttgattatca cctctgtat tttttcaatg ccaaaragac tgcataaacc tccctccatc 300
 aacctcaaaa aacaaacaga aacctcttga ggcctagcca ttgtttacat atgtgtgtttg 360
 tgtgcaccta tctacaacgt tttttcttct aaggagttta tctgccaata ttttcggctt 420
 cagcagcagc gctcttcttg acagactaag agaaggatct acagaaaagt cctctgatta 480
 aggtttttgg tcaatttaaa actctcttga caggaatctc tttctttccc ttggtttctt 540
 gcaaacagaa agcagattat tctcttggca caatagcgac tctagaaaag cttatgtttt 600
 tcaagctttg gtagaacttg ttaagaacag cctcctctta atcatttgtt caaaactcga 660
 atttcagtgg ctcttttctc ccacatgctg catgatgaaa tttataaagg tctgttttcc 720
 cccacacagg ttaatttctt tgtgttctta cagagccaat aggttctact taagtccaag 780
 ttatttatct aacctccctt ttcactagac tagagaactt cttttctatg gtccctatcg 840
 tga 843

<210> 155
 <211> 874
 <212> DNA
 <213> Homo sapien

<400> 155
 ttctgtgttc gcccacaggt tgcctcagct attcacaagc agaatataac accagaaaaa 60
 caattccatc cctttaggga aaaaagagga tcaattcacc actcaatatt taatacagcc 120
 aaaaagagct gcaaaaacaa gcaacacacc aatactgttg aacagaaaaa taacaagaaa 180
 tgaactagct gggagtcttg aagggttatg gacattgctt aaagcactta tcagtcccca 240
 gaaaaaccaa accaaaaaca ttttttaaga tggcatggcc ccatggcccc ctttaaaact 300
 gttgtgtgta acaaaagggc aggggtgggg agagaaaacc ccatcactgc tccctttttg 360
 ctgcacagtg tgaatgcacc cctcaaggcc cggcatgta cacaactacc acacaaggag 420
 aacaaagttc ctctgtgctt ggcctcttca aaggcaagga ttgaattttg gttgatgagc 480
 aagttctctc cgttaccat ccttgccaac cagcaactac atggttgact tgatctacgg 540
 ttttcttgag taactgtta ctggtctcag ttctggtaac atggaaaaga actcagctac 600
 tacagccaac tgaataactt caggaacccc ctccatccct ggggtctctc actcctatg 660
 cacttgatt ggat 674

<210> 156
 <211> 871
 <212> DNA
 <213> Homo sapien

<400> 156
 cttttagtga aaccccttat ctccatgtcc ctcttagagc ccagagagct gcccacaggg 60
 attttccaga attcctcatg tcaactagtt caatttccat taactcagat cagccattgt 120
 gattcaccat ttgtcagggc ctccagttta acaaacctc ctaccaccat catccttcaa 180
 cagccacagt ctgaattgag caaacatttt tttttctttg agaaaagaat gggctggggc 240
 acaactttta gctctgaggg agctagtgtt cggcttgacc attaaagccc tccctaacaa 300
 cttttctcca aatgtgttga ctctcaggg gctaaactgc tcttagctta gaattatgct 360
 ttctcagaga tctaccatat aggtgggtta atcactacca tctgttaact agttatatag 420

cttccagaca	tgagggagac	atcaaacagg	gatggaagca	arccczagga	tatgcaagea	480
ggccatgatg	aaccccttcc	cctctggcag	gagacaaagg	ccaaccaagg	gacagactgg	540
aaagcaattt	gatgtttcag	gaggagaaag	gggaagcttt	gaccagtcc	tgccttttgc	600
caagttcagg	cagttctcag	ctggttgca	cctctagcgc	agtaacsttt	tgcagaattg	660
cagattttcc	c					671

<210> 157

<211> 474

<212> DNA

<213> Homo sapien

<400> 157

cgcggttctt	aattctttta	gcctagaaag	tcttttacac	tactttaccc	aagggtccca	60
agtaaaacac	acscctagtg	taaggctagc	gcatttccct	tctagcactc	aaagaaagct	120
taacattttt	gacagtttgc	aaataccgac	ttgtatttct	gattccagcc	tattcaagct	180
ctcataata	aatttttatt	aatsttatgt	tgatctgggt	gcatttatga	tctccagatt	240
aagcttaggc	ttctctgttg	ggccctaact	tggaagtgct	tttttggatc	cctcctcccg	300
tgattcaattg	taatttcatt	tcccttgta	tggtctgcac	cagagaagat	tctaaatata	360
tgcacccaaa	gcccacatta	tatcttttga	aaagtgaat	gaagagttga	gtcactcaat	420
tacttttagat	attactgct	aaaacacatt	cccaaaattt	atggaagttg	gagg	474

<210> 158

<211> 584

<212> DNA

<213> Homo sapien

<400> 158

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tgtgttaaaa	tacatacagt	gaagctgagg	aagagccact	gaagtaaaaa	gtattgttta	180
caagctggga	aggatgttaa	ataaatccaa	agtatactaa	gtccgggaata	aaaggccagag	240
ttaatcaaat	tgtggctggt	actgatagac	gaacacagata	tattttctaa	atcctgggaat	300
aattactaaa	aaattttaca	tgtatccatg	gattccagac	tccatatttt	aagtttccaca	360
actactgtca	tttaaaacta	tcccttattg	gaagttctcc	actctccata	aattacccca	420
aactactctt	ctcnaaaacg	taaatgttga	acacactgac	ttacaaattt	tgggtttaat	480
ttataggaatg	ttgtggccct	caaaaatata	attgttgggt	aaacaaata	aattcttgaa	540
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<210> 159

<211> 671

<212> DNA

<213> Homo sapien

<400> 159

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agattttctt	ataattataa	cctttggaga	caatttgac	tttattttaa	tgttctgtct	180
aaatctaaat	ttcctttctc	taagctgaag	cctgatctaa	ataaggaagt	agttgggata	240
tatccacagg	ctgtcgaaca	tggagctgca	tctgagagac	aggtggcagc	aaacaaaagc	300
aaagcaggga	ctgagaacag	gcaggttccc	agagcaaat	ggactttgaa	agccaaagtat	360
ggctccctgt	aaaggagaaa	ctatagaaat	acggaaactag	aaacccctgt	ctgggatgtg	420
gtaagcacc	aaatctatag	aaaactgtat	gaattcttgt	gaagcagtaa	actatgatag	480
taatcshgtg	acacatatga	taacaaactc	aaaacaggga	aaagaggggc	tttattcaat	540
gctggagata	agtgaaaaaa	aaagtgaagt	gtctcaaggga	caaaggttat	cattctcaaa	600
aggaatatca	gctagatctc	ggggaaccca	tatgattatc	ataattctag	actctgttcc	660

gtattacaaa g

671

<210> 160

<211> 315

<212> DNA

<213> Homo sapien

<400> 160

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accaggtaat	cctaatgcta	ttaaaaatag	cagtaactcat	actgttttat	ccattgtata	120
atgtcataag	gatttttaact	ttcattgtaac	ataattgtctg	taaaagtctc	cccagtttgt	180
tttgtgtcat	ttacccctggt	gttaaatatgt	gtcagaatttt	ccattttcagg	tatgtttaggt	240
ttattccctt	ttatatggtt	tctgtttgaa	acttttgattt	tagaagacat	tctttctcaa	300
ggctcctaaa	ccacac					315

<210> 161

<211> 607

<212> DNA

<213> Homo sapien

<400> 161

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aggagattat	cactcactgt	tactttgata	attgagataa	atgtaagtae	aagtgttttg	120
aaactgtcaa	gtgcattata	aacagagggg	tttaccatag	aggtttctac	ttgatgtatc	180
asgagaagcc	ttttctggaa	tctgggtgcg	ccttgtgaga	tgctgttagg	taaggggact	240
ccttggttga	atttcttaca	tttgtgtcaa	cagttctggt	tccctgagta	ttccaaagaa	300
gatgtctatg	ggagttcaat	gtgcctttga	tttgatccca	atgggtcaga	atctgttttc	360
tccctcagta	ggctcctaca	ggatttgaa	tggaaaaaac	aggggtccag	gaacttcaag	420
ggatcctaga	tgttctatga	tttcaaatcat	ttgagattgt	ggggtgtggt	ctaattgtgc	480
tctcassaa	atgttgccct	tcttcaaa	gcatttaata	ctaaaaaatc	ccctgggtcc	540
aaattttatt	tgtgtmtctg	aaagctttaa	ctgaaagaa	gaagagccca	ctcctgggaa	600
aaactaa						607

<210> 162

<211> 443

<212> DNA

<213> Homo sapien

<400> 162

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ttaggctcca	ttcctattta	aagtagcctg	tttgttaact	gttactattt	ggagagagaa	180
gcagttgctt	gcacaaattg	aagactacct	ttcaaatagc	aaagagagag	gggaaggctg	240
atctttctgg	cttctaaata	aagatttga	tgtttctgct	tttactgtta	ctgtcacttt	300
cccagtgaaa	atgatttcat	atcattttga	gggtcttaca	agtatgggt	aagttctata	360
aattgcacaa	aaatgacacc	caatttcaat	ttatccttct	tgtattgtga	aactggaaac	420
tttatgacat	tgtaaattat	cag				443

<210> 163

<211> 686

<212> DNA

<213> Homo sapien

<400> 163

caggcaaat	atagtcfaat	acatcaaccc	cctcaggcat	ctgtggcaag	gcacccctct	60
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agagaacaan	taattgatta	cttgatgctg	aaagtggccc	acccagcctcc	atatacaccg	120
ccccattggt	ctcctagaca	aggccatgaa	ctggccaaaac	aggagattcg	agtgagggtt	180
gaaaaggatc	ccagaacttg	gatttagcat	atcagggtgt	gtcgggggta	gagggaaccc	240
attcagaacc	gatgatgag	taagttagct	ttgtatattc	ttgaaacacc	tataagttt	300
tatttaacga	ttgaatactt	aatgttaagt	gaaatctaa	tagatgttta	tgtaaatcta	360
ggtagacatc	acctggatcc	ccacctctat	tgtttacctt	tttgttttgt	aatttgatca	420
gttcaagtta	aaacaattta	cccaaaact	atgaatgttt	atgatctaat	gaatgattg	480
tttaatttcc	tattgctttt	tcacacacct	ataaagtag	tttcattact	cccaagagaa	540
atcactaaag	gcagaattac	tagaggtaaa	aataactagg	gttggtagag	tattactcag	600
gagaagtcaa	gggggagaaa	cttgtcccaa	tgattcagaa	taattttggc	atgggggggg	660
ggagggaaaa	aaatttggtt	tccttt				686

<110> 164

<211> 706

<112> DNA

<113> Homo sapien

<400> 164

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tcctatcccc	agaaaatgca	tggacatgca	tcctacagtag	agttaaaaat	ttccttgtac	180
taaaaattta	aaaactggaa	tcaccagtgg	caaatgtcta	gtcaatggct	acgacaaagg	240
cagatctctg	cgagctcata	aatgcaatta	ttggcttttt	tgcttttata	aaaagacatt	300
acatatttta	ttgcattatt	ctctaatata	aaaacatact	acccagtagc	tttccctatc	360
cccatttttt	gcttccagat	ttttatagaa	aataactgtt	ctagtctggc	cttgggaagt	420
gaaccacaca	gcacccacct	caactactca	ctcttcaatt	caatatgcac	atagcaaaag	480
ccaaaccttc	aatatctctg	cccaactcaa	aaaagttagt	ttcaggagaa	aaacattact	540
accagltgaa	taaataataa	ggcataaaaag	ctatgagaga	gatagctctg	caatctgtct	600
ctgggctaaa	aataaagggt	aactattggc	tttggaccaa	caagggtcaa	ggtcacatgg	660
tttattagaa	aagtcccccac	aaaaaaatta	aaaccccttc	acccca		706

<210> 165

<211> 437

<212> DNA

<213> Homo sapien

<400> 165

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aaatttgtcc	tgttttgcaga	cgacatgatt	gtatatctag	aaaaccccat	tgctctcagc	120
caaaatctcc	ttcagctgat	aagcaacttc	agcaamgtct	caggatacaa	aatcaatgta	180
caaaaatcac	aagcatcttt	atcacccaat	aacagacaaa	cagggagcca	aaatcatgag	240
tgaactccca	ttcaccaatg	cttcaagag	aataaaatac	ctaggantcc	aacttccag	300
ggatgtgag	gaactcttca	aggagaacta	caaacccctg	ctcaaggaaa	taaaagagga	360
tccaaacaaa	tggagagaca	ttccatgctc	atgggttagga	agaatcaata	tggtgaaact	420
ggaaaaa						427

<210> 166

<211> 124

<212> DNA

<213> Homo sapien

<400> 166

accatgtttt	cgttgttgtt	gagcaggagaa	gggaactttc	ctgccttatt	tcaacctggg	60
ccgaggaattc	atgggaatctg	cttgatcaga	gaactctggg	ccaaaaacgc	atcatacttc	120
ttgg						124

<210> 167
 <211> 232
 <212> DNA
 <213> Homo sapien

<400> 167
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 gtcacacata ataaatgtaa attcattgta caaaaattcc caacacatct taatacaaat 120
 atggtacatt tgacagtttc tgaacacagt tatcttttaa acttttttaa acctaaagctt 180
 tctttttttc ctggttatta gacacacaca aaaaaataaa aaaggaggctg gg 232

<210> 168
 <211> 677
 <212> DNA
 <213> Homo sapien

<400> 168
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 atgcatcttc cacttttttg cactttttta atctctattc tatagtgaat tgggtattcc 120
 atcttgctta agcaaaaggca tgcctctcta acaagatttg cttagagcag aggtgataga 180
 aggaaggatc cgaagacat ctgacatggc aactctgggg cagcaccttg ttgatggagt 240
 ccaggtgagc acatttcaca caattcattt agtgacaggt gggtttgctc ccttttcate 300
 caggaaaaaa actactcaca gacacatgcc cagaatcttg aataagaacc ctacattttta 360
 ggtatttctt caaacacata aatctctaaa tattgaacag gggcatctca gaaacattaa 420
 aagacacat aacacacacc aaacccctct tcaaacacag taagcaatgt ctgtatttag 480
 ttcactctaa aacattctta gctctctctg cagtttgttc ctaaaagatt tgattgggca 540
 caagaggaa ccaatttatta ataaaataaa agcttatitt tctttttgct gtaggataatc 600
 ggtacacac gtttcacat ctgagactta aatggatctt ttaaggtgaa aaggagaatg 660
 ccaggttctc ctgaact 677

<210> 169
 <211> 635
 <212> DNA
 <213> Homo sapien

<400> 169
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 gacgcacatt ttgtacttg cacatctctc tagacgacca attctagttt atggagtaaa 120
 atattcaag agttttcggg gagaaacttt aggatatact cggtttcag gtgtttatct 180
 gcccttgctg tgggaacaga gtttttgctg gaaaagtccg attgctctgg gttatcagag 240
 gggccacttc tctgcttttg ttgccatgga aaatgatggc tatggcaacc gaggctgctg 300
 tgcatactct aatcccatg atgatgtcac catcaccttc ttccctctgg ttgacagtga 360
 aaggaaagta ctccatgtgc acttcccttc tgcctcaggag ctaggtaatg aggaucagca 420
 agaaaacctg ctccaggaagt ggcctggaatg ctgtgtgacg gaagggggag ttctggttgc 480
 catgcagaa ggtttctcgg cgggcgaaat caccctctgg tcaactacat ggtacaaaaa 540
 tggctttgac ccgctacaga cagatccggc cgggtacatc cctgtctggt ggagaggaa 600
 atgaggatga tgaagatgaa cgaaaaaaaa aaaa 635

<210> 170
 <211> 533
 <212> DNA
 <213> Homo sapien

<400> 170

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gagctgttgg	aaagcccttg	aacttggctg	ttgggaagaa	tccacactga	agaggacccct	180
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atgcatatc	agaatgcttt	tggtaatat	acctgtttta	aaggagggtat	atctcattaa	300
taaaaatctc	tggctgggtc	gaagacccctg	agttatctca	attgttccag	gttcacagatg	360
gaactcttta	ttattggagg	gttccactct	ttcccccatt	tgtcacctct	acacttccct	420
agctctttaa	acacttttag	gctgggtgca	gtggctcatt	ccctgtaatcc	caggactctg	480
aaaggtccga	ggaggtggat	catttgaggc	caggagttcg	agaccagcct	gga	533

<210> 171

<211> 566

<212> DNA

<213> Homo sapien

<400> 171

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ctcctgtct	ccttcccttt	cccccttca	cagcctttcc	ccctaacaag	ttctttatgt	180
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acctagccct	tttccattaa	ctatttctaa	aatatagtat	ttgcttccct	atttgcctaa	360
acaaaatata	ctaaacatga	ctattcccaa	aattctgtagg	gtactaagaa	tatgaagaga	420
ttcctctctc	ttcgggggag	ggattcttag	tcgaasaggc	tttgtggagg	gggggtggtg	480
tttgaaatgt	actttaaaag	ccatctctca	agcttcgagg	gctataacctg	gcctgggtgat	540
tatcccaagg	cagtccatcc	aaacaggc				566

<210> 172

<211> 167

<212> DNA

<213> Homo sapien

<400> 172

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gaggcccttg	ctggaaacaa	gcactttgca	aataaaaacg	agagaggc		167

<210> 173

<211> 391

<212> DNA

<213> Homo sapien

<400> 173

ccctcccaag	tgcctgggatt	acaggcatga	mcemcmcmgc	ccctgatgata	gacacgtttt	60
taacttctaa	aaatatatga	tcatgattgt	gtctgtggag	acttgcccat	atactaaatt	120
ttccmcaact	agagatattt	gttcccttcc	acattttggg	agtcattatt	tcctctatga	180
agagagaaag	gcatttgata	caagttccaa	ggggcttcca	gtagattgag	actttctatt	240
ctggctggag	tgtgtgatga	tgaatttttt	ttgtctattt	gactttccaa	tgtattaaaa	300
ataaatgaa	aaacaaaggc	attaggtgag	gaacctatac	gtctctataa	tgcnaaatat	360
cacagaaata	atgcttcttg	ggaaatttag	g			391

<210> 174

<211> 474

<212> DNA

<213> Homo sapien

<400> 174
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 aggtttagaa tacacactgt gagctggcac aggtcaaca gctcggatag ggggtgctgg 180
 aaccagccag ggctctgac accaagctat ggccctatg cagaggagag gctcttggaa 240
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 ctacacgggg aagacgggga ggaaggatga actgtgtgag gtgatgttgc agtgagtgtg 360
 agtttgtct cgtccgttc tatgagggcc taccctttac taactagccc ccaactttca 420
 ttactctccc tttttctgt tacccttctg cctttttaaa gtggtttgca atcc 474

<210> 175
 <211> 650
 <212> DNA
 <213> Homo sapien

<400> 175
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 gcaacatgta cccacaaatg ttccaggagg taataaaaa atacaattca gctctctta 120
 aacatcctt gttgatctct ctgtctactc cgaaggttaa ttcttcttct ggaactccata 180
 atttttctta ttaattcacc ctatgtccaa ctcccacagt gaaaaaattc tttttatct 240
 ttgcaatcag cctctcggga ggtagcatta tctcagctct gcaagtaagg taaggctcag 300
 agaagcttgt atactgtac ttgggtagta attgcaagag ctggcattca gcccagact 360
 gtgggacttc tcactccatt ctctttccc ccaataggct gctcctttaa atacaattga 420
 tgccttgatg acgcttcttg gaactctagg tggccacagt tctttttcgg ccaaaaacac 480
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 aagggcaggc tcttcccacc ccttttccca agggaaacag ccttgcacct tttttactgg 600
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<210> 176
 <211> 600
 <212> INA
 <213> Homo sapien

<400> 176
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 tgaactctgc tccaggcacc tgttcaaccc tctctcccac ccaatgcctg tcaacttcaact 180
 gactccagtt acattgaacc aattttcagt ctacgggggg ablttctacc tttccagagct 240
 gacctccgac tttaagactt gacaggatatt tatcttgaaa ccagagaggg agctggagga 300
 aaaaaaactt gggcaggcac atcaatgctt ttccacacct tctccatcct ttccacactc 360
 accgactgcc attaccasaa cgcacagcac naccjgtttg gacaaagacg ccttcogttt 420
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 caactccaaa atatttattt caattttatt taatacggag gtaattctct tctcttggga 600
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<210> 177
 <211> 459
 <212> DNA
 <213> Homo sapien

<400> 177
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tgatctaat	ccccgttcc	cacaaacatt	scctcttcaat	ctgatgagt	gatcttttat	180
tttagtgaaa	cctcatcttg	ttagctaaat	ttcaaaaatg	gatgtagaat	gattaaaggt	240
tggatgactt	tttttttaatt	gtctcagyyt	ggaactagaa	tattgeakfa	aastgctgkc	300
ccagtattct	aaaagcaaaa	aagggaaatg	aggaacattg	cattcttagac	catttttata	360
tgcagtgtac	aatttgctgg	gctagcaaatg	agctaaagat	tatttatttt	tghtcatgyn	420
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<210> 178

<211> 720

<212> DNA

<213> Homo sapien

<400> 178

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cccttcccta	cctccctcgc	ctttctggcc	ctgataatct	ttgtcagctt	ccctcagctt	120
cccttctttt	gagatccctt	tcttaaaagg	gtccattcta	ctaacctctc	cccatatcca	180
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aaaagctact	gatgactttt	tataactaca	scatcttctg	ttgtgaataa	gaacatatat	360
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ttctttctct	ttctttttct	cttttttcca	aattcaatcc	aaagactta	tatctgctac	660
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<210> 179

<211> 427

<212> DNA

<213> Homo sapien

<400> 179

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ttcaatctct	ccctggcttc	atctaggagg	gltgtatatt	tcnaggaatt	tatccatctc	120
ttgtaagttt	tctagtttat	gcacataaac	gtgtctctcg	tagccttgaa	taattctttg	180
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tctgtctctg	tcttccgttat	ttcttttctt	ctctggggtt	tgggtttaga	ttcttcttgg	420
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<210> 180

<211> 720

<212> DNA

<213> Homo sapien

<400> 180

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taactgttta	gatactatat	agtaaaaaac	gaaggttctc	ccctttacatg	acccatcccc	180
cattcatttcc	ctcttttatct	tatactgtca	gcatttcccg	cttgtagcac	agtgtctggc	240
aatagtcacat	cctcaaaaaa	tgctcaatga	ctaatthaat	aatgattaat	aaataaatth	300
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tgggtcaatat	ttctataaaa	ccaatgaatg	agctcaaaag	ccattctatt	atttttttgg	420
atacgggttta	atatttttact	cataaatatg	cttaaagaat	attataatta	tatgaacttag	480

aatgggtaaaa	caatatgtac	agcagttatcc	tathtttttag	aataaaaaata	tcaatctgtg	540
ctcacatatg	tgggttggggc	atgactagaa	acccgattag	aacgggattt	ttttttcccc	600
ccattttttt	tacctgggga	aaatattgga	aaattttatt	tcccttcttt	tgggtttctaa	660
aattttatata	caggagccta	tttgggtttg	gataaatcat	tttataaaag	gtgggtttaaa	720
aaaggaaga						720

<210> 181
 <211> 546
 <212> DNA
 <213> Homo sapien

acaaatccttt	gggaagacact	actggggcttt	gggtgctgct	tttcaataat	tgagttattt	60
tgagcttggc	agtgagggtc	tattgcttgg	actaaaaatt	atttccctaat	cttctgatga	120
ccaagaaagg	aaaaatttaag	tttgcaagatg	ggagatgaaa	tatagccagg	gaatatgcac	180
actggtttctg	aatgaaagga	attcaatttt	cagtcacaga	acagtctgca	tgccgtaaat	240
tgaatttttt	ctgcaactgg	aatgatttgg	taattctttt	tgaacactgg	cttttctccc	300
caagaacact	aatgaatttgc	taatactttt	tcaagaaaaa	tggtttttta	attaggtcag	360
ctccacttcc	tcttattttt	taatccctaa	agaaaactgt	taaaagggaa	tggatctatc	420
acgccttttc	ttttaaaaac	acatttttaa	aaaaggattt	tttcaaccac	caatttgcct	480
ttattttaaa	attttgaacg	ccaaaagaag	ggaaataaaa	atttttccct	taattttacc	540
ccctta						546

<210> 182
 <211> 333
 <212> DNA
 <213> Homo sapien

ggcaactctg	actggtctctg	ctaattcaaa	tgtctcttct	gacatacggc	tctaagsggc	60
agaggcttga	agagaagtat	gtgggttttg	ggatcaagat	acccagttt	cagtcttgac	120
actgctatca	cttggctcgg	tggccactgt	aaattctatc	tgattgagcc	tcaagctgtc	180
cacctgcaca	atggggtttg	aaatttgcct	tggttgggtg	tcaacaggat	tcaatgaact	240
aatgctgtgt	aagcgcctat	ccagcactca	ataagatggc	cactgcatca	taatgctttg	300
ggcacaagta	acccaaacac	caaccccaag	ggg			333

<210> 183
 <211> 393
 <212> DNA
 <213> Homo sapien

ctgaatttct	tgggctttat	gtggcagtgt	ggtaaaaata	tatgatcaga	tttcaactgt	60
aagaasattc	tttcagcaat	acatgttagg	tcaagtttct	tgcattggat	actgaacatg	120
tgggttatga	gatttttaaa	aattgtctct	gacaaacttt	acggaaatgc	aacaaatctg	180
acatctagtt	ttgtctgaga	gtggcgttga	tatgaagaac	tgtgctgttg	gtgctgatgc	240
cacactaagt	tttggcagtc	acactcttgg	tcttccatct	ttgaaggagt	gggattggtg	300
gggggcttgt	tggctttatt	ttattacgtg	ccaccatcta	gaatacagat	tcttggatct	360
ttctctttca	caaaagtgaa	gtgcacaaat	cag			393

<210> 184
 <211> 700
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1) .. (700)
 <223> n = A, T, C or G

<400> 184
 ccaggccawt gaggaaaggr gaaagaatwt argggstwtb csaataggaa aaragggaagt 60
 ccaaatgggt cccntggtkg ccagataacc atgattgkqk atttagaaam ccccatgwtg 120
 ttagcccaaa atctccttaa gctgatttag camcttcagt aaktctcag gataseaat 180
 caatgtgraa aawtcacaag cttcctatm cgamcaatam cagmcaaca gagccaawtc 240
 atgagtgrec tottattcac aattgctaet aagagaagaa aatmcttagg aatcaccctt 300
 mcaagggatg tgaaggwtct cttcaaaagaa gaactacaar ccrctgctca aggaataaag 360
 agaggnmcca agtaaatggg aaagaatctt catgctcatg gataggagga atcaatcccg 420
 tgaaaatggk gatactgccc aaataatctt atagattcaa tctatcccc atcaagctac 480
 caatgacttt cttcmcggha ttinggaaaa lctactctac acttyatagg gtaacaaaa 540
 agaagccctt gtatgcaaga caatcctagg caaaaagac caamcctgga ggcatacag 600
 tncytgactt cmaactatw laccaaegny tmcrgkmcg aaaaagacac ggaacttgg 660
 mcaaacarg acwtwtwgar cmcagacac agaaomgagg 700

<210> 185
 <211> 192
 <212> DNA
 <213> Homo sapien

<400> 185
 ccagyccttc ttttaagtaa ggcctttttc sagctcattg tagctacasa gtcaataaat 60
 tggctctttt tcttttacc tgaataaggt gttaaggtt aaalgaaca actcaaatc 120
 aaagggattg gaggatttgg tgtttatgat tctctagaa aacatctag agaacacag 180
 ggtgggtttc ag 192

<210> 186
 <211> 688
 <212> DNA
 <213> Homo sapien

<400> 186
 gtgctggaaat tggcccttag cgtggctcgg gcagaggtgg gatatttctt ctggatagat 60
 ttccagclagg tagtccctc aaakaagatt atacgggttt gcattttcaa ggcagagttg 120
 tatacttctt gctctttatt caataaaaa aacttgaaaa tctgttctgc ccagtattgt 180
 aagggctcag gtacaaatat gaatgaaca atctctgctt aagtaacaca agtataggga 240
 caagattctc agtaaaatc tcaagtgaac ttgttaactc actagacact atcaggagat 300
 caataattat gtaattaaaa aaataaatta cctgcacaaac tgggttcttc tctggcaatt 360
 ctgcttggtt ttaagccaat tctcccatag aagcttatta ttccccatta gtcaatccat 420
 aggtgtaaa cttggtagaa caggacttga attgaacatt ctttacaagt aagttatata 480
 gcttctgaaa aaagggttgg aaaaagcatt ttgggggaat ataggaacct tcaaatgctt 540
 tccctctctt acaaacctta aaattatttt gaaaataatt taaggggggt gattttctct 600
 tgtcaaaatc ttgaacccca cttaccaggt ggttgggtca acccaagttc aaaaaaaga 660
 ttctggcctt tcttttatcc cacttgc 688

<210> 187
 <211> 779
 <212> DNA
 <213> Homo sapien

<400> 187

gcaaaagaaac	gatacatttt	cagtgtttta	aaatgaacaa	gtatggaaag	gcttatacag	60
taactgaaaa	gtctcccttg	ggaagccag	gtgggaggat	tgcttgaggt	cagaggttca	120
agaccagccc	aagcaaccatg	ggagagccc	atctctacaa	aaaattaaaa	aatcagccag	180
gcattggcga	catacttgta	gtagttaata	catgggaggg	tgaggcggga	ggatcacttg	240
cttggcggga	tttgcacctg	cagtggggcg	caacggccgc	tgtactccag	cctgggcaac	300
agagcaagat	gctgctctaa	aagaaatttt	cttttaaga	aaaaagccct	ctctatagaa	360
tgctctacaa	aagtcctatt	tcttcccaaa	aaaagcctct	ggtacctggt	gttagttcct	420
ggggtggaag	attactttta	aaaatagacc	tattttttta	gtatatcttt	cagggaacct	480
tgcttccgga	agcttttagg	aabgggactc	tgaasacaaa	agggatttca	atacctatga	540
caatgcttaa	agaattattg	gggcatttat	tttcaaatgg	aggtctacaa	aattctttgg	600
aaccccttgg	caattccag	aagccacttt	aatttttgac	cgaaaatgtt	tttaaaaatt	660
ggcttttggg	aaaactgtct	ctttcccaaa	aattgaaacc	cttgaaaaaa	aggggaattt	720
ttaaggttgc	cccttcttca	aattttaaac	cctctgaaag	aaaacctctt	tgtgacagg	777

<210> 186

<211> 394

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (394)

<223> n = A,T,C or G

<400> 186

ggcgamgtct	ggycaccatc	atgcccctta	atcaactaac	acctttttta	agagtgttcc	60
tgatttgacc	tttctccctt	agtttactgg	cgttaaaaaa	agtctcagca	atttttcatt	120
tttctcgtgg	gtctcattat	caaaccttta	cttacttggg	catacttctt	ctgggcttct	180
tctagtttct	gccttacaag	caatgctgtt	ctgtaaatct	attgtaacct	ctggaacatt	240
tcacctttag	agatggagga	tggagggatt	ggycaccgaa	gaggggctaa	atacgttctc	300
tgtcttngag	ctgaaagcac	agctactctt	ccttcttttt	gycgatgaga	aaagttaggg	360
ccagagggga	ggtgacatgt	ttagagttcc	ccag			394

<210> 189

<211> 681

<212> DNA

<213> Homo sapien

<400> 189

aagttctgac	tttggctcat	aaaacagggt	tattgactgt	ggctgcccct	aatatctaaa	60
aagttcttgg	gaagtgcctc	gttatttgtc	ttaaagatat	ctaaatatgg	tagaccanag	120
gttgtttgga	aacacatatt	atggactgag	ttctgtttct	tctgctgtgg	cgcacctaa	180
ctcagacctt	ccttctctcc	ctccctttct	ggcgggcatg	gtatctgagc	tcacagacag	240
acaaggcatg	ttageatcat	cagatccatg	gcaccgtgct	gggattttag	cctctccaaa	300
gtccacttcl	acagtcctat	ctttgcttaa	atcctcagtt	gttgaggctt	gctctgctgt	360
cagtaatccc	agctataaat	ttcccccaaa	tgtggggcct	agataaagta	gaaggtgggt	420
ggactcaggt	tattttcatg	ggatgacagg	aatgggaag	agaaagggna	ttgaaaataa	480
aaagttatct	cagaatagca	ttaacctctt	tactgttcaa	gaattcagaa	agcctactta	540
gaaatgaggg	ccttgaggaat	gatacccaaa	tattgggtctt	ctaccccaaa	aatggccttt	600
ccaatatatc	gctttcctgt	ccccaatttg	gctttttaag	tagaatttaag	ttacctcaaa	660
ctttacctga	agggctgggtt	t				681

<210> 190

<211> 639

<212> DNA

<213> Homo sapien

<400> 190

caaatacatg	acttccattg	gcatagaactc	ttctatagtc	tctcaggcac	accttatgac	60
taataaagaa	actgtctctt	agatataagc	caagttttag	gagttatctt	tgtagtttct	120
gtgttgagac	tatgggtctt	ccctgtgcaa	agacttgatt	agcaataact	atttgaaacg	180
atccccaaat	catagtgcgg	ctgcccaccc	ttctgatcaa	ggggatctct	gtatctccca	240
tgaagcttcc	ataggtctca	ccctagatta	agtgccttcc	ttctcaagac	agtgaacaga	300
tggagacttt	ttgtagttat	cattatacaa	ctgtgcccctg	tgtattttat	tatccaccca	360
gagaactgag	gcactggctt	tacctgtcag	ctacgcccagg	ggtgtgacgt	catctttctg	420
acttgatcac	acatgcacaa	ttgcttaata	tttccagcct	agctgcaat	actcctgtgg	480
taaaaaattt	ttggggggct	ggggaggtaa	agaacaaggg	ggggaacttt	ggaatatttt	540
tattcattaa	tcatatttcc	gaatttgtat	ttttttttgg	aatgacccaa	agggacttaa	600
atacgtattg	tgtttaaatt	aaatggaccc	aaatggaggt	aagttaacct	aatgggacaa	660
algaalaaaa	gglllatgac	tgggagcatt	tacccatgaa	cctcccttag	agctatttaa	720
cccttctctt	ggaaagccct	gaaggctggg	aaattaaatt	ttaaagacag	tactatttcc	780
cgaatcgcct	tccaatggc	catgttttaa	agggcacaca	ttttgggatg	gccttgccc	840

<210> 191

<211> 697

<212> DNA

<213> Homo sapien

<400> 191

ccatccctgaa	tactgatttt	ctactggagc	ttctattccat	ggcgatttgt	aaacccctgg	60
gctccgttac	tattatggag	catactttca	tctcattctc	ggctattggg	caatatgtat	120
ctcctccgat	tttatccact	tccacagagc	aactgttaaa	tgttcccttg	ggtaggacta	180
ggcgagatcc	aaactggagc	tgcagctctg	agtcacatca	attctcttgt	ctctctgtaa	240
gataaaactc	gttttttaag	caaatttaaa	ctactggcag	ggaatttttg	ctcccagtta	300
ttaaaaactt	ggaaatgtgt	aagtggagaa	aggaactaac	tgcagttaac	tcttaaccga	360
ctctattata	attcnaaaca	tacataatgg	tggaaaaaac	cgggaaggga	agaatgtggc	420
aatgtccact	ctttgcccc	aaactaaccc	ttactttccc	tggggggccc	aaacactggg	480
aaaaaccaaa	atggtaacct	ctatagcatt	caacttttat	ttcactccaa	acgaanaatt	540
attttgacta	tggcttgggg	actccattag	tggaggaagt	tttataacct	atagggaccc	600
ggccctttca	ttctacccaa	atccaggcaa	ttttagcaat	ggcagggaat	ttacagggaag	660
acttggccaa	ttatcttttt	ttggggggact	aaaccaa			697

<210> 192

<211> 687

<212> DNA

<213> Homo sapien

<400> 192

ctggttacta	tagctctgca	gtataattta	aagtcaggta	atgtgattct	tccagttttg	60
ttattttctg	ttaggatagc	tttggctatt	ctggatcggt	tgtggttcca	tataaatttt	120
aggatagttt	tttgcatact	ctgtgaagag	tgtcattggg	actttgatag	ggattgcatt	180
gaatctgaag	attgctttgg	gtagtatgca	cattttaaca	atattgcttc	ttccagattaa	240
tgaacatgga	atgtttttcc	tttattttgg	gctctcttta	atttccctta	tcaagtgggt	300
ataggtttca	ttatagagat	ctttccctct	tttgggtaat	tccatcgtat	tttaatttatg	360
tatcgctatt	gtcaaatgga	atgacttttt	aaattttctt	ttcacattgc	tccgggtggc	420
atattaaaag	ctactgatgg	atggtgattt	tggattctgc	cactttactg	gaattgggtg	480
atcagttcta	atcgttttct	tatgcacccc	ttttaggttt	ctacatgtaa	gaatatatca	540
ccttcaaaaa	cggataattt	gacttctctc	ccatcccaat	ggggggccct	ttatatcttc	600
tcttggcctg	aaggtctctc	ttaaaacttc	ttatcccttt	gttgggaata	cagtggggac	660
aaatggaaat	ccctgtctat	ggccccca				687

<210> 193
 <211> 493
 <212> DNA
 <213> Homo sapien

<400> 193
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 aaaaattcat totagcagaa taaagaatgg ttctgttttc tagttctctg ctgaatgaa 120
 agttttgcca attatcttca tagagttagt atataatgaa tgcacctcca aatgcaaac 180
 aacaaattca cagtcacatc ccaaatcact tcttctctca gctctcaaaa tctgtcaagt 240
 aaccagttaga atgggttttg agcagtaata ggaaagcaaa tagaaagtca agggggactt 300
 tcaacgcaca caagaccact tcagatctct atctgactgg ttctctaatc aatctcttct 360
 cagagttaat gagcatgagt ctgccacaca gaactttaga gagagtcttt tatttcacag 420
 actgtaaaat tgggaagaat cactcatctg caaagtcaaa tgtcaaaagt tctgtctccc 480
 actctctcctc agg 493

<210> 194
 <211> 424
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(424)
 <223> n = A,T,C or G

<400> 194
 cyaggggcant tnaagcagaa saggaastan mggggattca attaggggaa wraggakarw 60
 caagtttgcc atgtmccag atgmstgat tctatatcta gamcagcccc ttgtctcagc 120
 ccaaatctc cytaagttga taagcawctt cagcarmgtc tcagatctcr acmtowatne 180
 goraantca cmwgcattct tatccccaa tawcagcaca acagggggcc aatctcatgg 240
 tgaactccca ttcaacaatt ctacnmaaga gaataaata cctaggatc caacatacaa 300
 gggatgtgaa ggaactcttc aagggagact amaacact gctcaaggaa ataaaaggag 360
 atmcaamcaa atggaagaac attcatgct catgggtagg aagaatcaat atccgkgaag 420
 atgg 424

<210> 195
 <211> 229
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(229)
 <223> n = A,T,C or G

<400> 195
 tgaacacccc tnggaaggaa cctgtctcga tctannanaa anggaacggga cagctctgcta 60
 aaatgcaccc ctcttagcgc ggcgcgcggg ggcagagttt ctctctgggtg ctttgacctg 120
 tatttggttt aatgggtttt tctaatctc ttcaatcaat aaaaattgtc gtattctaact 180
 aaaaaa aaaaaa aaaaaa aaaaaa aaaaaa 229

<210> 196
 <211> 557

<212> DNA

<213> Homo sapien

<400> 196

gagggtggctc	atgcoctgtac	tcccaccact	tggggaggct	gagggtgggca	gatacacttca	60
agttgagagt	ttgagaccag	cctggggcacc	ataccaaagt	gagatcttat	ctctacaaaa	120
aaattcaaca	acacaaaaaa	ccaatcaaca	tccatttcca	gggctctttg	gtcttcttca	180
agaacaaaca	tatgaactac	ataagctgat	tcttaagagt	acaaaatata	atgagctttc	240
tccactgtac	aagcatctct	aagttgttct	atcactgcat	atcacttcca	tgaactaacc	300
tgaagaaagt	gttgaccatt	ctacccaatt	aactgtazac	taagattgct	ttactgggtt	360
gcctaaattt	gagtaacctt	aaabttttgc	tttttatcca	aattcattct	cccttcttca	420
aattaaatag	ttttgtttag	aatcggataa	gcagatgtta	ctttttagaa	agggcaatag	480
aactctacca	catgctagaa	tttgaactgt	ttctttaast	cagctmmttc	tctatgctag	540
taactaagaa	nattata					557

<210> 197

<211> 614

<212> DNA

<213> Homo sapien

<400> 197

cttactctacc	tatattttaa	atgatccctg	acgcccctca	agacaaatat	attaattttt	60
ttcttttctg	ggatagagat	cagaaaaaga	gtagagatga	aactacttga	gaacacactgc	120
aggagatatt	tatgaggtga	gaatgtccag	aaacttgtac	agggagaata	ctataatgac	180
ccctgaagag	agagctctag	acagctttag	tattagaggt	tgccacgtgg	ctatctaccc	240
actaataaat	acaagaaatt	actaaaatgg	aagcccctgg	aactatgttt	tgaggaaagt	300
gagaaatgtg	acctattcta	aatgggtgaa	tatgatttct	ttctcattaa	gttcataaat	360
aactttcaga	catgtaacag	ttctatgaag	gtgcagtagt	catttcgtat	aagttttata	420
cccaaaagtg	tttttactaa	gaatgtcaca	ggttcttttg	tgaactcttg	tcgtttttcc	480
tcattgttaa	tactgaata	gaacatttgt	gtcttaacat	aaggcaataa	acgcacataa	540
gaacctttac	ttttatatag	aaagtggagg	aaagcttggc	agagtaattt	gttgattata	600
gataacagct	cttgtagaaa	ttag				624

<210> 198

<211> 175

<212> DNA

<213> Homo sapien

<400> 198

tttttttttt	tttttttttt	ctaacactta	tgcatttatt	ttctgttcta	agaggaaaaa	60
cgttaacttgc	acgtgaaat	gaatgcctgg	atacacggct	cagcacgagg	ctaaagtccg	120
aagttagtga	aagcaaaaa	gcattgttat	tttaagttaa	taacgaacaa	gaaaa	175

<210> 199

<211> 271

<212> DNA

<213> Homo sapien

<400> 199

ctgttgatca	atgatgagct	ccccagagta	accagccctct	acatagtcag	catcaactggt	60
ttctcaggaa	argcatcacc	attgttccat	ttgttgcaaa	atgtatgcac	aagtatcttt	120
ttatttttaa	aaaagccctg	acatttttat	actgtctgct	ttctaagata	ttttcaacta	180
tacagtcact	acggttcaga	cacaaatgag	tgggataaga	gaaggctata	gtgcagataa	240
tggagaaact	agcccgagct	tcagatattt	gttttccagg	ccctctcaat	aattgggtac	300
acctcacaat	atgtgagact	tgaagtgcag	tggcacggca	tactctggcg	caggcaacttg	360

ataaagactg	tgtttgcaca	tacttagcct	gcacttcag	ataccaggca	tctaggcag	420
tcccagatgg	tgaacgttaa	tcttcaaaaa	acctatgtg	gaagtattat	cattgtcttc	480
attttacaga	tgaggaaaaa	gaagcaccgg	gatgtcacta	tcttctcaca	ggtccacacg	540
caagtaagtg	atggacaggt	ggctcagcca	tgaagctatt	gctgttaacc	actagggtga	600
tttgccctca	tttaattctt	cctaaaactg	cactttccc	gttagtccct	ctttttggtc	660
tgtcgtttga	ctcttgggtt	ttgttttagg	gaagctccat	cccttttttt	cttctcttgg	720
tcaatagtgt	caactccttg	gggacatgac	caggcaaaag	ctgggtacag	aaatgtatgc	780
ccaaacacca	tcccaagttc	cccccaacag	gtctttccctg	gacctgttt	gttagggggg	840
tatatttggg	aaaatttttc	aaattttctg	a			871

<210> 200

<211> 737

<212> DNA

<213> Homo sapien

<400> 200

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ctgctatttg	tgaactatcc	tttgtcttga	ggatataaag	agaagttaaa	tactaaagaa	120
ctgaactgtc	cattttctga	ccatgagtaa	agatgctggc	tgtcaaacct	cctgttcata	180
ccttcgttta	tttatagagt	gtactctcca	tgtacgggat	tgcctgataa	tgttactttg	240
acttcagata	gcttgcaagt	taatggagga	agaagacaaa	catgcaacta	actaggtcac	300
tgaggcctcc	tttgtcttcc	atgggaagct	aggttgctct	gtaaccttgt	taactttctgt	360
ggtttttgag	tgcattccat	agcaaatata	cccttgttcc	ttatccatcc	cctgcttttt	420
tctttatctg	gcatttgatg	acattttttc	atgtggggaa	attgagtcag	gtgagggtga	480
aagaaactaa	ggacacgaca	ctaaattctt	tgatgttttt	ccttaaaaaa	ttgtttctca	540
agtgcctcat	aaagggttgt	gaagtcttaa	gagccatagg	acttggttta	ttgtgaaaga	600
gtgctctcac	ggggccaggc	taaaaccttt	caaggactct	ccttctctcc	tctcccttgt	660
tccacccagg	gtggcgaccc	ccaaaagcca	caaagcctcc	ctttcttcat	ggaaagggtc	720
aggaacggaa	gggaacc					737

<210> 201

<211> 493

<212> DNA

<213> Homo sapien

<400> 201

tctagaaatg	cagcttttat	ttattacccc	attctcttca	agtccttggg	aaataacata	60
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tgagctataa	ctcatctact	tcaaatttat	ttataaacac	acctaaagct	actcaagata	180
attatttaac	ggttagctct	taagttgaat	tggctacat	actgcttggg	aaagaaaccc	240
gattttttag	cttcttggca	aatccagccc	tctgggtgat	ttttcttttg	cagaagatgc	300
aagttatttt	ccaacttcac	aattaaatgt	atttaacatg	aacattattt	tgttttaaaa	360
ectataacca	ttgtaggaga	attctcgcca	gtcttcagtt	ataaccactc	caacctcttc	420
actttctctc	tctctctctc	tttttttttt	gcctatgggt	ttaatgggaa	aaatatctaa	480
aaactgtcac	tac					493

<210> 202

<211> 183

<212> DNA

<213> Homo sapien

<400> 202

ccttttttct	tcagtgaacac	cgccggggga	cgaaggttgt	ggtgactcaa	ggttagcctc	60
aaaggggagc	cccacctctc	cctcctggac	cacagagacc	acctgcttgg	cggcgctgag	120
cttttccgaa	agggtagcctg	ctcccggggt	gctggggctg	gggctgcccc	cccgcgcggt	180

gttgcctgtac	tccctcgccccc	agtccgttggg	ggctgcctctc	ggccagccagg	tgcaggcttgg	240
gggcactgtt	acgcagagcc	atgctgcctg	ggagggtaga	tct		283

<210> 203
 <211> 713
 <212> DNA
 <213> Homo sapien

<400> 203						
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ctggtgctct	acgaaaacaa	agcggcctat	gagcggcagg	tcccaccagg	agccgtcctc	180
accctgtgac	gtacacaaat	cctcacctcc	gtggacccat	acctggagct	cattggccac	240
tctttaccag	ggaccacggc	aaagtccggc	agtgcctccc	tcttcagctg	ccccacacag	300
ctcccgctca	tctctcggca	tcttctatgc	cgtcactact	acttctgcat	gatgacagaa	360
ggcagacagg	accagtggaa	ggctgtgctg	caggactgca	tccggcctcg	caacaaatgga	420
atccctgagg	actccaaggt	agagggcctt	ggcttcacag	atgccatccg	catgtaccca	480
cagtccagg	agtgtatcgg	ccctcggcgg	atgctctgtg	ggaccgaggt	gcagctcctg	540
agcaacctgg	tgatggagga	gctgggcctt	gagctgaagg	cagagctcgg	ccccgggctg	600
aaggggcaac	ccgcagaggg	ggcccccagg	gtggatccag	atcttcggac	ggcgtgtacc	660
acatggtgta	cgagcaggcc	aaaggcgccg	cttcgaagga	gggggctgtc	cga	713

<210> 204
 <211> 275
 <212> DNA
 <213> Homo sapien

<400> 204						
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cttgatctga	actgaacctg	tcttctctga	tgatgcttaa	caactacatc	ataggattct	120
ggtgaacctg	taatacagtt	ctgaaagtac	agttttatat	aataagatgc	tgatctcttt	180
attcttttcc	gtaaagctgc	tggagaccca	attgtgttcc	ctgccttggg	atttattgaa	240
ggtctggaaa	atgtgtcttt	cctagatcca	aaacag			275

<210> 205
 <211> 694
 <212> DNA
 <213> Homo sapien

<400> 205						
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tgtatgtctt	acagttatag	gtgaactttg	atattgtttg	tcttacatag	catccctata	120
gacagcttaa	gtaaagtga	tgttaaggag	ggtatgctta	ttgatgaact	cttgtagtgg	180
cttaccagct	ctgttagtat	agttaaattg	atctcagtag	cttcaagctc	ttataaaaatg	240
gttgaagctc	aaatacctgt	gataactcca	atacactttg	acttaattga	gggtgggagg	300
ctagttgaaa	tgcattttat	ttacccaagg	agtatgttaa	aatgatagtt	ataaatgttg	360
gaagtttaaa	gcccgaact	cagtttagtt	cttlaacaa	cttcaagaga	acaaaattag	420
atgttgacct	tgtctcttta	ggctgtgtgt	ttcccatatg	cttcttgctt	tccctgttcc	480
aggtggtggc	agcaatcttg	gtgtgattga	ggttatgctg	gcaccactcg	ccacacggcg	540
caacaagctg	ttagctgggc	agaaagagtg	gcactctctg	ctaccgggct	ggggggcagc	600
tttaccctag	gatgaagtaa	ccttgcattc	ggttgcagg	tgtactgtac	cgtacacagg	660
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<210> 206
 <211> 704

<211> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1) .. (784)
<223> n = A,T,C or G

<400> 206
 tttttttttt gnaaaacag ggtttcatca tgtttgccag gctaghtcca aactgctgac 60
 ctcaggggat ttgcgcgct caccacattc aactttcgta agtcagtatt taacatctaa 120
 ctcaghtgac caasatttaa aatttccttg cactttacag caaaataca tattggggct 180
 ctactgagc aatctatata tgcacaaact aaactcaga aaagcaaaa ggtccattca 240
 acatatagca gcttatatct aactatgtac aggtatgtat gttttcacag ttagatcttt 300
 aaaaaattt atatttgata ttttcaaaa taactctatt ggtatataat aatattttca 360
 aagctcaact gatcaaatg catcccaaga acatatcaca ttaaataaat ctctctagtc 420
 tttcaaaaca gataattgaa gtacgtaaa gttgaggttt gtttbaagtg tattctgtca 480
 gtccctacta ctagggaagg cagaatcttc taaatacgt acgacagaaa ctcccaagc 540
 ttggagggaa tgggcagctc ctgaactttt tggggggggc ctccctcttc gggattgaca 600
 tggacataa atgttgcaag ctaagggacc cccccggg ggtggggccc caaaazaaac 660
 caccctctc cgtcaatgg tggcccccc accaacctta aaaa 704

<210> 207
<211> 225
<212> DNA
<213> Homo sapien

<400> 207
 ccatttttacc cgtactgcca atggaattct ggaattgagg aaatttgtat cattgaggtt 60
 cagtaggatg tttggcttaa aaattttatc ggcacacaca aaagcaaaa aaactatttg 120
 gtactgaggt tcaatgcccg ggcaggagggt atttccagaa aatactcatg cctgtgttct 180
 gttccttctt tcccaataa ctgcctgtga ctctctaa gggca 225

<210> 208
<211> 678
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1) .. (678)
<223> n = A,T,C or G

<400> 208
 ccttatctca tcaaaaaaa tccagtttcc aactctatct ctcccaaaaa gaaagcacc 60
 ggaacagatg atataaatcg caaatttttt caatctctta aggcacaaat aataccaatt 120
 ctgtatcatt tcttccagaa cacttcttaa ctctctgtat cctcagaga taactctaat 180
 agcaaaacca gataaagcca ttacaagaga ggtgacaga caactgtgtt ttatttgagg 240
 atgcaaacca aatttaaat aatatttaac agtgaaaaac tggatgctct tcccttaagt 300
 tagagattaa ggaacaaatg tcccttctac taactccata caaacctta ctgaaatctc 360
 tagctagctt tataaaataa aaaaaacca naaataaaa caaaaggtgt acagactgga 420
 agatcagtg aggaaggaag aaataaactt ttctttggcg ataacatgat tcttctatgt 480
 ggaactcaca gagatttgaa catttttttt ttttgagaca gtttttgctc ttgttgccca 540
 ggttgagtg taattggcgc atctgggctc atgcacact cccctcccg aattcaaggt 600
 gattctctg cctctcgct tccggagta agcttgaggg ttaacagggc atggcacc 660

ccatgccccc agctasat

678

<210> 209
 <211> 720
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(720)
 <223> n = A,T,C or G

<400> 209
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 aaagtatgca aagagtagga aatttctctg atgacatata gagggttaca aaggagaaaa 120
 ctcttttgcta cctctgatca agaattagact aaattcttcca agacccattct gactggtgtc 180
 ataatcaag gaggtacaca cgggaagcaca agggatgtgt cctcttgag gagaggtcag 240
 gtgaggactc agtgagaaga caagccaaag agccaggtct tggagaagt caacccctgtt 300
 gacaccttga tcttggaact acctgttga cacccttgat ttggactttt agcttccaga 360
 actgcnagaa aataaatttt tcttggttaa gcccacacaa gtgtatgttt ttgtttatggc 420
 agnccataca aattcaattt atattttaac agagaatata aaattctaat ataaccatttt 480
 acagttaagc attcaatggtc ttttttttct tactaatcaa tccatcaaaa cagaaagtgt 540
 tgcaaaattc taacacattt ctctaccact actgtttcta ctctctttaa actactccgc 600
 aacatataaa atagaaagggc aaatgcactc attaaacaga tgtttgggga ctaatggcct 660
 taaaattcta ttaacatttg aatatataaa atattcaagc attatctatt gatcacctca 720

<210> 210
 <211> 277
 <212> DNA
 <213> Homo sapien

<400> 210
 tccatgtatt tttatcaga atggaacaa atgtatgtat gcaatykttc cattccacca 60
 tgaatataaa cagtataatg aaatacaaaa tggattcaaa caatgalahg ctatttlett 120
 ttacctatga ccttggcaag gtcttcttaa aaatctgcg aataacrgat gttggagaga 180
 tcatggggaa atagcaactc aaatgttaut catgagagtg tactatgttg taacttact 240
 tggaggggcaa tttggtgata catttaaaaa gttttgg 277

<210> 211
 <211> 715
 <212> DNA
 <213> Homo sapien

<400> 211
 gtggtagaaa tactaatctt gcaattacag aaadaaacaa atgcccattca catgggttyct 60
 aagcaaaagt gtctgacrac ccccacccc cacccttcaa aaagccctta aataaagagg 120
 aagatcaaaa gaaaacaaaa taattccaga gtttaacctc ataatcaaa tatagccacg 180
 gaagtggcaa agtttaaaat aatgccccta ctgttaggac tagtatgctg tcaaaagcca 240
 caatcttttt gttttagtga gttgattttc aatagaadaa tccaatgaa cctgtgttta 300
 agttccacac tgggttgagg acctctgaak ttagtatcaa atgattaat ttactttctc 360
 gatgtcaaat cttagtataa aattttccat tattttaaac ttcaattgaa tcttttaaaa 420
 agctgtctaa attgactat atgagttccg ttaactcttc tgtaaaatgc taacaaattg 480
 aactgtccgc agtctttta aaaaactgg gggtggggtt attctatgaa gaactctcat 540
 taagtcttga aaatcagaaa ttagagacaa ataacttcag atatagacta gctccacaag 600
 caaatttata caattatctg taacagtcta taactatctg tgtatctata tatacagtca 660

ccactttcat aggtaaaaa tattaacttc atgtccact atgacagaa gtsta

715

<210> 212

<211> 717

<212> DNA

<213> Homo sapien

<400> 212

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gaaschcttc	ccacaaccca	gcagtagata	tattaaaaac	tacaattttc	agggatataa	120
ccaattatta	attcttttga	gggtttttgt	tttastacaa	ggacacacac	acacgtacaa	180
aatgacgag	tcaatactga	ttaaacagaa	caacaaaata	agaagctcaa	attatcatca	240
gctatttgtt	atatctgaaa	tacaaataat	gcacttgett	ctgacagaa	gattagagtt	300
cctactctga	aaactcaatt	gtcttgatgt	ggcgaagtga	gaagaaagga	tgatttttct	360
aatgaaagc	atgtatcagg	gtagcccttc	ggagagcttc	gtcaaaaccc	cgaactllgc	420
atttgttgtt	ttaccaccca	aacgttttta	cccgaggatg	tgcagcaatg	ggaaactctc	480
tccactgctt	gtgggaatat	aatcagtat	aaccactttg	gaaaaccatt	taacattgtc	540
aactacagct	ctacacacaa	gtgctataac	caacctttcc	actccagggt	atcacacctc	600
aaatatgaa	gtgcccaggt	ctaacraaaa	ggccgcctaa	aaggaaatgt	tttgagaagg	660
gttaaccttg	tttaattagt	gcaaaacttg	gaaaacacac	cccaaatggt	ccctatcc	717

<210> 213

<211> 599

<212> DNA

<213> Homo sapien

<400> 213

cctgtttttg	cgaggcagga	gggaagcggg	atgggagtg	tggttaggcc	aagggtagtt	60
caaaaggatt	caggcaggat	atgacacacg	gagtgctgga	gcagggcctt	tcagcccccg	120
tgtggatgat	gacgggcac	ccaggacatg	cgaggccttg	ggccagtgga	cagccagttg	180
ccacacagga	agggcagatt	aactgacaca	gttaaaggaa	tttgccctag	ggagtgcag	240
ccagaaaggt	ttggctcttt	tatatctgta	acattgaaa	aaagggaact	ctcctgtctc	300
ctgtattaag	ttttgacttt	agctcagcaa	atgcagtggt	tgtggcagta	aatatattct	360
gatascaata	ttctttcccc	ggaattttag	gttttatgat	ggttatggaa	aatgtttaca	420
tgacaggctg	tcaataatat	tttttgcttc	taaaatataa	acatcacata	agtgtacgga	480
ttttaagtat	gcacctcccl	gaacttttca	tacgttata	caacacacta	gtaacctctc	540
ccagtttcaa	gatgtagact	gtttccacaa	acccctcctc	ctgttcctta	atagccccc	599

<210> 214

<211> 789

<212> DNA

<213> Homo sapien

<400> 214

cattatgaca	aacctttgcta	tgcacaagat	atgcttcaact	atctccact	atcacaacac	60
tatgcataat	agatatctaa	ttttttcctc	tcttgcaatga	agtctttctc	gatttccctc	120
tgtgaattt	tctctcttca	aatgacgtgt	ttccatagta	cttgctccct	tttcaagat	180
atcttccaca	tgcataattt	tcccacagtt	agtttccatt	cttaactctc	acactagatt	240
acaaagtcac	tatagacaaa	gaattgttca	acattatata	acctctcttg	cctatgttgg	300
taatttgcac	ctactatgtg	ttcaataaag	gcttghcttt	ttcaatatac	aaaactttgt	360
aaagattcaz	gaacttctag	aaagtcacga	ggagatagc	catttccatt	ctaaagaact	420
acccaaggc	aacattccag	acagactaca	aggggctatg	tgcattggatg	ttcattatca	480
tattattctt	cattatgaag	attatgatgg	taataatgaa	aatgattata	ttgtatttgg	540
ccttatttga	agtcacagcat	tgagaatgta	ctttatctgc	attatctcac	tgagttctcg	600
tagcagccct	ataaggtaca	gaactttatc	taagtttcaa	aaaatcaagt	taatgtccaa	660

gggcacacaa	ctagtaaaag	aggggggcta	ggaaatttgg	aacccccaaa	ggggcaaacct	720
ctcaagggtt	atgaatcttt	accatttatta	taagggaagct	tggcccatgg	tggccccaaa	760
aaaaacggg						789

<210> 215

<211> 765

<212> DNA

<213> Homo sapien

<400> 215

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gagtcagagt	atcaaaagact	tgtattagaa	aggggtgttg	cagtaastcta	gtcaggggtat	120
gagaaatggg	ttgtattaga	gtgtcaggag	tagtcgtggc	aaaaatatat	agatcaggat	180
gggggatggg	ctctatctca	caacctgact	ccagtcacatg	gcagtggttc	cttggagtac	240
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aggggtttta	tgaaacagta	gtgggtgtctg	ccatgggttg	aaacaatggag	aggggggcca	360
ccctttctgt	gcagatgttg	cttctggtaa	ctatctctca	caatgtaatg	ggagaagtac	420
taaggatcag	taatttatgg	aggggtgtaaa	agactactga	tatttaagcc	tggggacggg	480
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ttgggactgg	gatttagtacc	agagattttg	attgggggtg	atttctatag	aatggatagg	600
tgattttact	cttgcaattt	ggabtgaggg	gtggggaaaa	ccagaaaggg	gctggggggt	660
aaatttagtag	aggttcacct	tgaattcatt	gtggctcata	ccaatgctga	aactgattgg	720
ggaccttttt	actcttgagt	ccctttgtca	gggaacccca	gaag		765

<210> 216

<211> 780

<212> DNA

<213> Homo sapien

<400> 216

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tttaaggggtg	ggtcagaaca	tgttaagata	acttactgta	tatgtattcc	cttgtatttt	120
gttaaaagctg	gaacatttga	ttctttctca	tttcttcttg	aaassatatg	aacctatttt	180
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ctttgcaatt	ttctatataa	tcagtaacttt	tttttttaatt	ttgatataca	ttgtgtgaaa	480
aaagaaaatg	gctaataaac	tgtattcaat	cttaaaccaat	gtataaagat	tgtaacttggc	540
cagttcaaa	tgtatacttt	ttcttaactga	attataacag	ttataattct	gtgttttctt	600
gtaaatgttt	cttttccctt	aaatacagat	aattcatttg	tactgcttat	tttattatgg	660
gtacacacaa	aaagacttca	ggaaacagta	atgtattagt	atggttccag	attgttgata	720
ggactgtct	caaaaggatg	gtggtttattt	taaatataaa	tagctaattgg	gggtggtaaa	780

<210> 217

<211> 810

<212> DNA

<213> Homo sapien

<400> 217

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attcgagggt	ataggaaagg	ccctgtcaag	ttgatttcaa	ctttggatgt	cagactgtga	120
agctccctga	gaaacttggg	gtaataggat	cttcttttgg	ggatgaanac	ggggaaggcg	180
tgaggaccta	gaactacttt	ccctaggctca	gaaaaagaga	attacccctt	gacaaatatg	240
ataactgcta	ggtattttcc	agggaaattt	agggattggc	gtctttccct	agcatgttga	300

ggaaattggca	gacagcttcc	taagggagg	ggagggggg	ccagggtga	caatggttgc	360
atccacgtga	ccttsagtta	tggcagatga	ctctgaaag	gaatgaggcc	aatgagacaa	420
gatggatgga	gcactcagg	tggacttggt	ccttctctca	tgttgaggga	gagggatgg	480
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tctgaaact	gcatttcac	tctatgtgt	tccagaatac	tgggctcaat	actaacataa	600
gaagagatct	tcattggaga	ttctctcaga	ctaaagaaa	tctatctctt	tgaaattctt	660
acataacccc	tagcaaatg	caggctcttc	atacttctgt	cctttttcca	ttggaagaat	720
tgtttaagga	aaaatttaatt	cctattttatt	ccctcaaaag	gttgggcatt	gctttgattt	780
taccccatgg	gggaattgtc	ctttgaattt				810

<210> 218

<211> 817

<212> DNA

<213> Homo sapien

<400> 218

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gtgctctcca	agtaacgggt	tttgcctgag	gtctccatgg	gaagaagagc	atcatttgat	120
attcagtaga	tctgcccac	ccaaatgggt	ccatctctctg	gaanacagca	ctcactacca	180
gaaactgtta	tagcaacccag	caatgacac	gctgctctctg	ctggctcttc	cgtacaccag	240
taaatggaat	caccaatgtc	ttgcacacat	acatttccca	gtagtacaa	aaagcctctt	300
atcaggaggt	gtcaattcaat	gacttgactc	tatagtgcac	tgcagcttta	tgtcatacca	360
acattccaat	attcaaatat	ccttccaatc	catttgagca	aaatccacc	atggctgcac	420
agacacatgt	atctttcttt	cttccatgga	ctcctaaact	gtccccacca	tcaggaggtt	480
tcttctctca	gaaattctct	taagcttctc	tactcaatgg	gaggtacaca	cagagacctg	540
agaatatgca	gaggccagaa	tctctgtctg	tgttagagat	caactgtact	ctgccccact	600
ggggccacca	tctctctgggt	aaagtactctg	gaagtaaat	acattccctg	gagacagata	660
egggtcttca	ctgcagcctg	ttagaaaaaa	caatgtctgt	aaattacctc	ataggtccaa	720
gagtttttga	tctatcttct	cataatgggg	ctatggcctt	tttaccctgg	ttttcataca	780
gaacccatctg	cagaaaggac	attgaaattc	aaagcca			817

<210> 219

<211> 661

<212> DNA

<213> Homo sapien

<400> 219

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ctctgcccac	ccagccctgg	caaccagagc	agattctgnc	tctaagaaaa	ggaaaaagaa	120
aatgaataga	tgttggcttt	agatgttaat	gacatccgtt	gttttttttc	tttctctctt	180
cttagaaca	ggttagtctt	ctcgaattaa	agaactacca	ttttcttttt	ttctacaact	240
ttccagagct	ggtgaggaac	tgatgtttag	atttaattga	tatagttagc	gbcataatct	300
aategaattg	aaactgagac	tctaggasaa	agatagacat	gagataagga	gtaggccatg	360
tagacatttc	tgtattcttt	atgaaaatgt	tgtagaattc	atcttttttt	ttggtctgac	420
ctttgcccac	ggtgctgagg	aaaggaagac	cagcccatca	ggcaaggctc	tgtttttctg	480
atcttatccc	gtttgattct	tctcgttagg	attggagcaa	ataatttcaa	tatgttcttc	540
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<210> 220

<211> 792

<212> DNA

<213> Homo sapien